Trains

25¢

December, 1946

Henry R. Griffiths Jr., Box 1162, Boise, Ida.

The Portland Rose

Union Pacific train 18 with 18 cars leaves Boise, Ida., behind 4-8-4 No. 823.

Trains

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"Have you ever heard of the government appropriating public funds for the building of railroad stations or tracks, or terminals or bridges, or any other of the many things that are necessary to run a railroad? In the 20 years between World War I and World War II, more money was spent out of the public treasury on transportation agencies competing with the railroads than has been spent on the railroads in their entire history."—Roy B. White, president, Baltimore & Ohio Railroad.

Volume 7, Number 2

December 1946

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Lewis and the Diesel Locomotive

John L. Lewis has done more for the Diesel locomotive than any man alive. The chief assest of the steam locomotive has been its ability to burn bituminous coal, our cheapest and most plentiful fuel resource. Five years ago the Diesel and the steam locomotive were roughly on equal terms as to fuel cost. The Diesel has a thermal efficiency about four times as great as the conventional steamer, but five years ago Diesel oil cost about four times as much per heat unit as did coal. Not now, however. The Lewis insistence upon constantly higher wages for coal miners, coupled with opposition to mine mechanization, has raised the price of locomotive coal 51.1 per cent in five years while Diesel oil has gone up only 24 per cent.

What this will mean to the miners will gradually become evident, for railroads use more than one fifth of all United States coal. What it means to the railroads is much more rapid Dieselization than would otherwise have been the case. Union Pacific has even converted all present coal-burning steam-passenger locomotives to oil burners, and when steam locomotives burn oil Diesel power is not far off.

Chief Executive William Dyer of the Central of New Jersey put the case most bluntly when he accepted delivery of the road's first Diesel-electric road locomotive, a Baldwin 2000 horsepower job to be used in suburban passenger service. He said, "Railroads were forced to curtail operations earlier this year because of fuel shortages brought about by a nationwide strike in the soft coal mines, and now another crippling strike threatens. The aim of the Jersey Central Lines' management is to give the railroad complete independence from the use of bituminous coal and we will continue to replace bituminous-burning locomotives with oil-burning Diesel-electric locomotives as rapidly as possible.

"We are sympathetic with the difficulties of our friends in the bituminous coal industry, but the Jersey Central Lines and its patrons cannot and will not be placed at the mercy of the whims of any man who decides to call a strike in the soft coal mines when it suits his fancy. This condition has prevailed too frequently in the past, but it is going to end as far as the Jersey Central and its operations are concerned."

Will this new fuel situation really mean the demise of the steam locomotive, the most magnificent machinery ever designed by man? From the performance standpoint, either a steam locomotive or a Diesel can be designed to meet almost any operating requirements. The steam locomotive has met and exceeded the top speeds of Diesel operation. Only essential difference between the two machines is that the steam locomotive, not having any "gear shift," delivers its maximum horsepower at nearly its maximum speed, giving snappy acceleration at high speeds, while the Diesel, with its electric transmission, can use its maximum horsepower over nearly the full-speed range, thus giving it greater tractive effort at low speeds.

As far as railroad management is concerned the Diesel vs. steam argument settles down largely to economics. The steam locomotive costs much less to buy, about one third as much per horsepower. Maintenance costs are about the same, although some locomotive men point out that most Diesels are new and maintenance costs may rise as average age increases. Claims are also made that steam locomotives could be more efficiently maintained if they were given the benefit of new shop facilities, as has been the case with Diesel-electrics.

When it comes to availability, the Diesel can put in more hours per day. It doesn't need boiler washing, fire cleaning, and other such attentions. But on many railroad assignments schedules do not permit using a locomotive for more than a portion of the day anyway. No steam locomotive could round trip on the *Denver Zephyr*, but on the other hand the average overnight freight run, or the local or suburban passenger run allows plenty of time for steam locomotive maintenance.

Lighter axle loading and lack of track pound is a definite point in favor of the Diesel. Steam locomotives must often be restricted to certain divisions. A new locomotive may mean strengthening bridges over the entire main line. But the Diesel spreads its weight over more drivers and can go almost anywhere on the railroad. Branch line curves are no obstacle to mainline Diesels. And the lack of reciprocating parts eliminates the unbalance which causes the steam locomotive to give a hammer blow on the rail every time the wheels go 'round. Cities are crying "Smoke" at every plume of steam, and this doesn't help the social position of the steam loco.

What does it all add up to? Until John L. Lewis started kiting the price of coal the score, taking everything into consideration, was about even. Now it isn't, but some railroads will continue to use steam because of location in coal territory or because of the importance of coal in their traffic streams. No railroad ever made money hauling company fuel deadhead, but railroads do make money hauling coal for someone else — 12.6 per cent of normal gross revenues. One railroad president suggested, "If I were the Chesapeake & Ohio I'd hire speakers to go about the country selling all other roads on using coal-burning engines, and then I'd convert the C&O to hauling that coal with Diesel power."

Right now only 67 steam locomotives are on order for United States railroads, as against 500 Diesels. Last month 8.0 per cent of all passenger train miles were pulled by Diesel, 5.4 per cent of freight, and 25.5 per cent of switching hours were performed by Diesel. And these percentages are all going up, fast.

In the long run a decreasing supply of oil may assert itself, but by then the new gas-turbine locomotive or the steam turbine may have taken over. Or the Diesel itself may have been converted to burning some coal-oil emulsion or powdered coal. Bituminous Coal

Lucius Beebe.

This is probably the last steam passenger train to run on the Rio Grande Southern. Pulled by a leased Rio Grande engine, it made the trip over the entire line recently with an inspection party in the two business cars. Lucius Beebe and Charles Clegg were along getting pictures for their 1947 book, "Mixed Train Daily, a Book of Short Lne Railroads."

Research is working hard on the coal-fired gas turbine and has authorized the purchase of two full-size gas turbines and locomotives on which to mount them. The C&O steam turbine electric locomotives are already in the stage of boiler test and should be in service by the middle of next year. Electro-Motive feels the Diesel is at present the best form of motive power, but is not permanently wedded to it if something better turns up. Neither, of course, are the other locomotive manufacturers. Lima feels the simplicity, reliability, and low cost of the steam locomotive will always assure a market, both domestic and foreign, for a firm specializing in reciprocating steam locomotives, and the remarkable success of recent steam jobs such as the Nickel Plate, C&O, and Pere Marquette Berkshires would seem to prove it right.

As for us, and most other lovers of railroads, including even some Diesel men, we'll never find anything to replace the thrill of the steam locomotive at work. Its naked machinery, functional in the extreme, is the personification of power and we hope it stays on the American scene for many decades to come.

Picture Window in Chicago

No railfan passing through Chicago should fail to visit the new second floor waiting room in Dearborn Station. Here has been built one of the most remarkable innovations in any railroad station of the world; a long, high and clear picture window giving an unobstructed view over the interior of the train shed. Sitting comfortably on a waiting room bench one can look out over the roofs of the trains, watch switching moves, arrivals, and departures, and see the crowds coming and going. The sun shining down through the skylights in the huge arch cuts soft yellow beams across the interior, and the sound effects of arriving locomotives are dimmed to lullaby softness. The show is continuous; now the *Super Chief* backing out to the coach yards with its stainless steel glistening in the half light, then the *Blue Bird* backing its observation platform up to the bumper, and perhaps next the brilliant blue and orange *Meadowlark* lining up at the platform just before the *Erie Limited* leaves.

Moffat Road to Become Part of Rio Grande

The Denver & Salt Lake from Denver to Craig, known as the Moffat Road, is being merged into the Denver & Rio Grande, which has controlled it by stock majority since 1932. This is part of the Rio Grande reorganization plan, ordered into effect as of October 30.

The Moffat Road was built by David Moffat as the beginning of

5400 Horses

POWER FOR THE PULL...

2,700 teams of horses, hitched tandem, in a line over five miles long—that's the mighty power at your service in a single Rio Grande diesel-electric freight locomotive.

This is one of the many reasons why Rio Grande makes fast, dependable delivery of your shipments via the Direct Central Transcontinental Route.

F. C. HOGUE
General Traffic Manager
Denver & Rio Grande Western Railroad
Rio Grande Building, Denver, Colorado

Rio Grande

a project to give Denver a direct line northwest to Salt Lake City across the formidable wall of Rockies which had always cut Denver off from the west, but in his lifetime Moffat did not see his dream come true. His road crossed the continental divide at 11,660 feet, highest standard gauge crossing in America, because he did not have the millions to build the tunnel he knew should be bored. His money melted as the snows blew across the summit at Corona, absorbing as much as 40 per cent of operating expenses. The road finally stopped at Craig, far short of its goal.

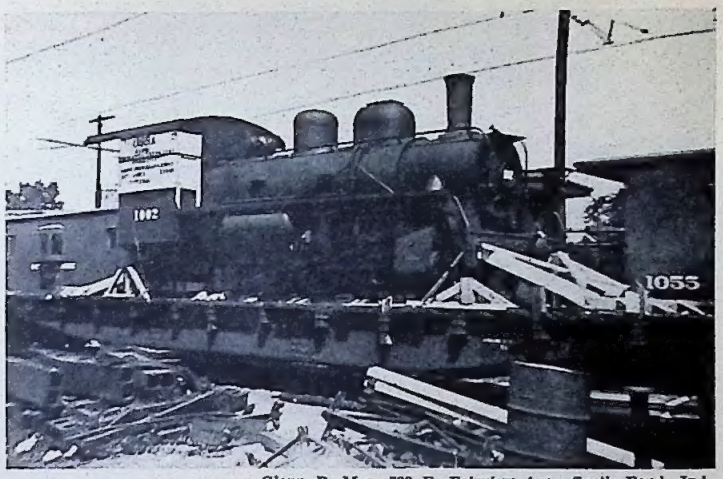
In 1928, however, a new generation pushed through the 6¼-mile tunnel and D&SL became a major crossing of the divide, but still with no place to go except the dead end at Craig. Then in 1934 the Rio Grande finished its Dotsero Cutoff which connected the Moffat Road west of the tunnel with the existing Rio Grande main line in the valley of the Colorado and for the first time Denver had a direct railroad connection west across the Rockies to Salt Lake City. In 1939 this became the route of the *Exposition Flyer*, joint Burlington - Rio Grande - Western Pacific transcontinental train.

Through all this period the D&SL continued to run its day and night trains over the same route, 129 miles to Orestod (Dotsero is Orestod spelled backwards), and then on 102 miles farther northwest to end of line at forelorn Craig (population 2123) in the county named for David Moffat. Now the road to Craig will become a branch of the Rio Grande and the proud name D&SL will disappear from the cars and locomotives of the Moffat Road. Yet the merger is as logical and as inevitable as was the use of the Moffat Road by Rio Grande to create a new transcontinental route a dozen years ago.

Railfan Trips

December 28: Week-end trip via Santa Fe from Los Angeles to Arizona over special scenic route for photographers. Write John M. Ferris, 219 North Avenue 66, Los Angeles 42.

Next year: Electric Railroaders' Association, 51 W. 85th St., New York 1, plans an extensive schedule of 10 trips to be subscribed to on an advance basis, thus allowing better trips at more reasonable rates for those whose subscriptions guarantee the schedule. "Dividend" trips may be arranged at no additional cost if funds remain after the season is over.



Glenn P. Moe, 728 E. Fairview Ave., South Bend, Ind.

A narrow gauge locomotive from the Davenport Locomotive Works, Davenport, Ia., is reblocked in the South Shore Line yards, Michigan City, Ind., before being turned over to the Nickel Plate to continue on its way toward Yugoslavia.

Death of J. J. Pelley

John J. Pelley, president of the Association of American Railroads, died last month in Washington. He was 68 years old and had started in railroading at the age of 21, after graduation from the University of Illinois, as a station clerk on the Illinois Central. He rose on that road to vice-president, operations, and before going with the A. A. R. as its original president in 1934 he had been president of the New Haven and president of the Central of Georgia.

Luggage Transfer

The Erie Railroad has started a new system of hand baggage transfer at Chicago by which porters tag the baggage of incoming Erie passengers as to departing station and the bags are then transferred to the parcel rooms of the outgoing stations. Passengers thus do not have to worry about their bags during Chicago layover, but can shop or visit and go directly to their departure station. There is no charge and the service is available for both coach or Pullman passengers.

Odds and Ends

State Line interlocking plant, on the Chicago & Western Indiana near Hammond, Ind., is being rebuilt with track circuiting to lock mechanical levers and with electrical operation of some signals formerly mechanically operated. This plant is the largest mechanical interlocking plant in the country. . . . The Monon is putting its track crews on motor trucks so they can cover territory more efficiently than in track speeders. . . . Cincinnati voters approved leasing the unused city rapid transit right of way to a new switching railroad which will use it for industrial railroad purposes on condition that its construction will not interfere with possible future use for rapid transit.

By getting a 10 per cent passenger fare increase through the Illinois Commerce Commission in the record time of one day, Chicago, Aurora & Elgin was able to grant the 18½ cent wage increase demanded by its employees and resume operations, which had been halted by a strike on the very day that the road emerged from receivership. . . . Two other short lines, strikebound as an aftermath of the wage increase granted by big roads but not by all their struggling "poor relations," are now operating again. They are the Barre & Chelsea and its cousin, St. Johnsbury & Lake Champlain. . . . New Haven this fall again ran its colorful husk-

ing bee trains, popular for several years before the war.

An extra platform has been added to the north side or Milwaukee Road train shed of Chicago's Union Station and is being used regularly to accommodate Pennsylvania Railroad trains. Space in the south side shed is very short and so some Pennsylvania trains have used the runaround tracks and arrived and departed from the Milwaukee Road side all during the war. Now the arrangement is being made permanent. . . . John Barriger, president of the Monon, started his railroad career as a yard clerk and on dark wintry nights when numbers were hard to write he would ponder the vagaries of railroad management which caused a little line with 300 pieces of equipment to number box cars with six digits. He vowed if he ever had anything to do with it he'd use numbers as short as possible. Now the Monon is numbering its 500 new box cars 1 to 500, its locomotives from 1 up, and the president's business car sports a big number 1 on the side. No yard clerk or dispatcher will be put to unnecessary paper work because of excess Monon digits.

Oklahoma Railway Company plans to abandon interurban service between Oklahoma City and El Reno and Guthrie. . . . A dozen country school pupils from central Wisconsin rode the *Hiawatha* into Milwaukee recently to visit the zoo, but the railroad gave them such an interesting trip all they could talk about when they got back was the train. . . . The Burlington's *Denver Zephyrs* completed 10 years of service on November 7, with mileage of 7,443,649. The daily run of 1037 miles per train compares with a national average of 275 miles.

Chesapeake & Ohio recently took 300 boys from Michigan on a quarter-cent-a-mile all-expense round trip excursion to historic Virginia localities. Robert R. Young, chairman of the board, said, "By introducing these boys to the railroads at an early age, we expect to make them adult customers of the future." . . . The Delaware & Hudson has abandoned its Lake Placid line beyond Lyon Mountain. . . . Milwaukee Road's new movie, "A Railroad at Work," is available to civic groups on request to F. H. Johnson, public relations officer of the road at Chicago. . . . $245,000 in taxes collected by New Mexico in special taxes from railroad private car companies, such as refrigerator car lines, has been transferred directly to the state highway road building program. . . . Joseph H. Finn, prominent railroad advertising man who named the *Empire Builder* and got up the Monon's famous dining car menu, died in Chicago.

Locomotive Notes

Southern Pacific is going Diesel-electric in a big way, with the announcement that 20 6000 horsepower freight Diesels have been ordered. SP had only recently ordered its first road Diesels, except for the jointly operated *City of San Francisco* trains, five passenger units to be used mainly on the new *Shasta Daylights*. . . . The recent rumor that Rio Grande converted some outside frame narrow gauge Mikados to standard gauge to help handle war traffic is nothing but a rumor. Probable source of rumor: Rio Grande did convert 10 light standard gauge Mikes to outside frame narrow gauge engines some years ago, but it has not reversed the process. . . . Burlington has ordered three 4500 horsepower, five 4000 horsepower, and one 2000 horsepower passenger Diesels, six 6000 horsepower and two 4500 horsepower freight Diesels, all from Electro-Motive. . . . Reading now has 20 of its new 4-8-4's on the road. They are rebuilt from heavy 2-8-0's. Last year 110 old Reading engines were scrapped, most of them old Mother Hubbards. All of the Mother Hubbard Atlantics are now gone. The Reading is headed for such a standardization of motive power types as the road has never known.

Railroad Reading Matter

Atlantic Monthly for December will contain another of Robert R. Young's challenging and provocative articles on the future of business, and particularly the railroads, "A Strange Alliance for Monopoly."

Last Train to Yesterday

Attracting widespread attention as the first steam passenger train with sleeping cars to run over the narrow gauge rails since 1899, the Rio Grande Southern Railroad recently ran "the last train to yesterday" on an inspection trip which might also go down in history as the last time a steam passenger train was run over the entire road. The life of the Rio Grande Southern hangs precariously on the slender thread of a mail contract, renewable every six months, which is handled over 102 of its 172 miles by the road's famous *Galloping Geese*, gasoline powered homemade rail vans.

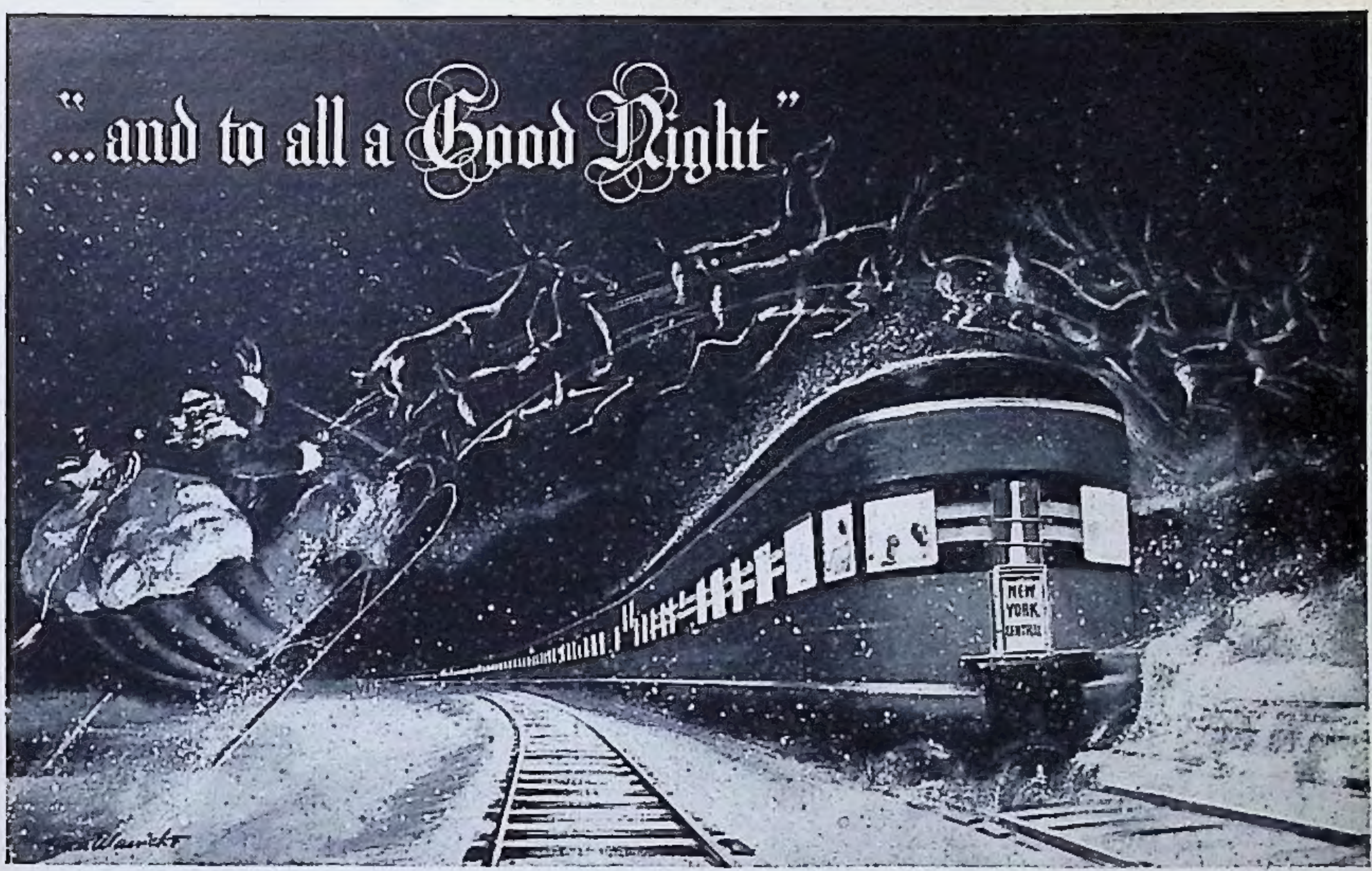
Two old business cars, miraculously maintained, carried the inspection party. The cars were lit by solid silver coal oil lamps, were heated by Baker heaters and were furnished in period design with Turkey carpets, silver plumbing fixtures, old-fashioned ice boxes and kitchen equipment, and with brass beds in the master bedrooms. Entire populations greeted the special at Dolores and Rico and at the latter stop the schools were recessed so that many of the children could see for the first time a steam passenger train. Others saw their first colored man, the porter.

Guests on the trip included Lucius Beebe and Charles M. Clegg, who were there to gather material for their "Mixed Train Daily, a Book of Short Line Railroads," which will be published next fall by E. P. Dutton.

Details of C&O Withdrawal from A. A. R.

The spectacular resignation of Chesapeake & Ohio and its affiliated Nickel Plate and Pere Marquette from the Association of American Railroads did not include C&O withdrawal from the various co-operative operating and engineering services of the association, including the car service and per diem agreement, interchange agreement and the agreement for the transportation of explosives.

The C&O lines will continue to bear a prorata share of the expenses of the A. A. R. car service division, mechanical division and bureau of explosives, and to comply with A. A. R. accounting rules and freight claim rules. In these co-operative services the A. A. R. is far more than just a business or trade association and is in fact a necessary adjunct to the efficient interchange operation under which our railways are to all public purposes a continent-wide system, and to this extent it would be hard for



Any night's a good night for a *"Winter's Nap"* on the Water Level Route

You go, weather or no!
Out there in the darkness, winter storm clouds may be scudding low above the tree tops. But aboard your New York Central train, you can depend on all the things that mean a good night. Good food in the diner. Good company and good cheer in the club lounge. And a good bed waiting for you.

Of beds and roadbeds
Drift off to sleep in the quiet privacy of your room . . . cradled by a deep mattress, rubber-cushioned couplers, stabilized car springs and roller bearings as you speed over a smooth, rock-ballasted roadbed through gentle, water-level valleys.

Good nights—good mornings!
Awake refreshed. Dress at leisure in your own completely equipped room. Then, an appetite-rousing New York Central breakfast . . . and you arrive with energy at peak, and not a business hour lost on your overnight vacation!

The Gift of Sleep is yours on the Great Steel Fleet

NEW *DREAMLINERS* in Production

Cars enough for 30 new all-room trains are on the way to spotlight the NEW in New York Central.

© 1946, New York Central Railroad Co.

NEW YORK CENTRAL

The Water Level Route—You Can Sleep

NEW YORK CENTRAL SYSTEM

any carrier of importance to go its own way.

Reasons given by Robert R. Young, C&O board chairman, for the resignation are:

1. The basis of Department of Justice charges now pending against the Western railroads is that the association has failed to keep its hands out of the establishment of tariffs and has encouraged its members to indulge in other noncompetitive practices. Because of these allegations, the entire industry promises to become unnecessarily involved in expensive and harmful litigation of long duration.

2. The association is accused of having maintained freight rates, discriminatory against the South and West, for the purpose of perpetuating industry along the lines of the few Eastern roads that dominate the association's affairs.

3. Ignoring the highly successful experience of the Chesapeake & Ohio lines, the association strenuously opposed the introduction of competition in the sale of railroad securities. The source of this opposition could only have been banker dominated railroads, because after competition became general the railroads saved tens of millions of dollars at the expense of these banking interests.

4. Under the association a shortsighted philosophy of trying to squeeze the last dollar of revenue from obsolete equipment has flourished; competitive technological development has been discouraged; and relations between railroad officials and equipment suppliers have continued far too intimate.

5. The association has discouraged rather than urged through service at such terminals as Chicago and St. Louis. It was the Chesapeake & Ohio lines, rather than the association, which forced this service — to the great profit of the industry and the convenience of its patrons.

6. It was the Chesapeake & Ohio — not the association — which forced the elimination of the vast black market in train space reservations — an easy step that has not only saved the railroads millions in revenues, but has made previously unsold space available to hundreds of thousands of anxious travelers.

Bluntly, we think the quarter of a million dollars a year we have been paying in A. A. R. dues can be better spent by ourselves.

Robert R. Young

In the Railroad Headlight

Railroad man of the month is L. A. Campbell, brakeman on Monon passenger trains 5 and 6 between Lafayette, Ind., and Louisville. Like most passenger brakemen, Campbell has much opportunity for contact with passengers, and he makes use of it. A rider in the rear coach of his train is likely to find himself in a very interesting and intelligent conversation about the railroad, its service, what it means to the communities along the line, and about the Indiana countryside in general.

If the passenger prods a bit he may get stories about the 1913 and 1937 floods which Campbell worked through on the Monon. He may learn how this road was the only line getting food into stricken Louisville in the 1937 flood. But whatever the subject matter, the passenger will get off the train with a distinct impression that he has been treated as a guest aboard the Monon, and he will be anxious to come again.

Campbell lives in Lafayette and has worked for the road since 1904, when he started at the Bloomington freight station. He has been in passenger train service since 1907. His four children are all college graduates, and one, an Annapolis man and naval captain in the war, won the presidential citation and a number of medals. Mrs. Campbell runs a bookstore in Lafayette.

As a typical railroad man who loves the rails, Campbell is doing his part to keep business on the rails which have given a livelihood to his family and college educations to his children. And from what we've seen, pleasant trainmen can do a lot to make people glad they travel by rail.

[Readers of TRAINS are invited to nominate railroad men for this column, giving in each case the reasons which entitle the nominee to special public commendation.]

New Frisco Facilities

The Frisco has asked the U. S. District Court for permission to spend some $5 million for improvement and replacement of railroad facilities at Springfield, Mo., including new shop and office buildings, a new yard, and new mechanical facilities. Approximately 53 miles of track are included in the plan, and yard capacity would be doubled to 3000 cars. It would be the largest single construction project ever undertaken by the Frisco, and would be important to better operation of the entire system because of Springfield's strategic position at the crossing of the St. Louis-Southwest and Kansas City-Florida lines.

New Trains

The spry, aggressive Chicago & Eastern Illinois put its second postwar streamliner into service last month. It is the *Whippoorwill*, running a round trip daily between Chicago and Evansville. Only a month before the C&EI's *Meadowlark* had started between Chicago and southern Illinois. Both trains are Diesel powered, with Pullman-built cars. Diners feature diagonal tables, coaches have Sleepy Hollow chairs. Exterior livery is a brilliant deep blue with orange striping.

Louisville & Nashville now has its streamliners *Georgian* and *Humming Bird* in service. Diesel powered and built by American Car & Foundry, they operate between St. Louis and Atlanta and between Cincinnati and New Orleans, respectively. Both trains are equipped with coaches, diners and tavern-lounge cars. The *Georgian* is on a daytime schedule, while the *Humming Bird* is an afternoon and overnight train.

Chicago & North Western will not only start new Chicago-Omaha and Chicago-Ashland streamliners next year, but will put a through streamliner on the *Minnesota* 400's run, Chicago to Mankato via Madison, and will start a streamliner between Sioux City and connection with the Omaha streamliner on the main line. The *Nightingale* and the *North American* on the Twin Cities-Omaha run will be equipped with Diesel-electric power.

The Northern Pacific ran a test train from St. Paul to Seattle recently in 34 hours, 34 minutes running time in order to determine what speeds would assure the most passenger comfort. Makeup was a 4500 horsepower Diesel loaned by Electro-Motive, six new streamlined coaches, and four heavy business cars. Top speed was 91 miles an hour and the train of 850 tons was hauled over Butte Mountain without a helper, a feat never before accomplished. Proposed schedule for the new *North Coast Limited* next spring is about an hour slower than the test run.

Judging by Appearances

A distinguished group of New York, Boston, and Chicago bankers and insurance men interested in railroad securities was being taken over the Kentucky & Indiana Terminal Railroad in Louisville on a special inspection trip just a few days after the November election. The guests, all looking as much like bankers as bankers could be expected to look, were riding a low-sided gondola car pushed ahead of a Diesel switcher. As the strange train passed down a main line through a residential area two small boys stopped their play and gazed in astonishment. "What's that?" called one to the other. His pal answered, in tones readily heard on the gondola, "Democrats leaving town!"

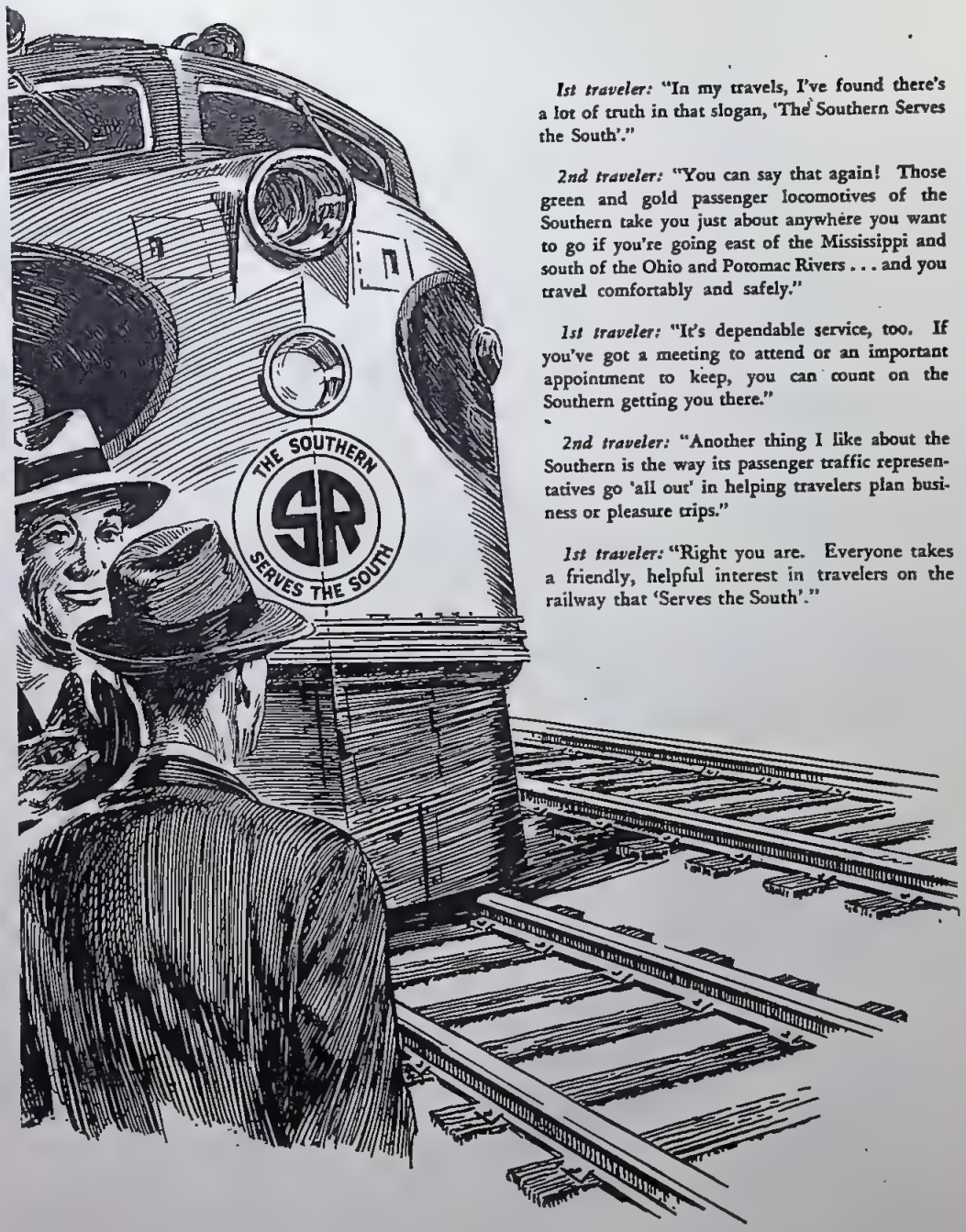
A. C. Kalmbach.

Mountain Express on the Erie

Train 27, the *Mountain Express,* with milk on the head end and following engine 2945 (the former 2917, renumbered after a run of hard luck), approaches Howells, N. Y. At this point the Erie's main line (two tracks at right) parallels the low-grade freight line (tracks at left), the former Erie & Jersey Railroad which the Erie acquired in 1915 and now known as the Graham line. The main line and the Graham line form two rough loops, parting on the west at Graham, coming together at the same grade here at Howells, then spreading (barely discernible in background) and rejoining at NJ Tower near Harriman. The Graham line is approximately five miles longer than the main line.

Photograph on reverse side

One traveler to another . . .



1st traveler: "In my travels, I've found there's a lot of truth in that slogan, 'The Southern Serves the South'."

2nd traveler: "You can say that again! Those green and gold passenger locomotives of the Southern take you just about anywhere you want to go if you're going east of the Mississippi and south of the Ohio and Potomac Rivers . . . and you travel comfortably and safely."

1st traveler: "It's dependable service, too. If you've got a meeting to attend or an important appointment to keep, you can count on the Southern getting you there."

2nd traveler: "Another thing I like about the Southern is the way its passenger traffic representatives go 'all out' in helping travelers plan business or pleasure trips."

1st traveler: "Right you are. Everyone takes a friendly, helpful interest in travelers on the railway that 'Serves the South'."

SOUTHERN RAILWAY SYSTEM

Woodford. Richard Houghton.

Over the Tehachapi

Southern Pacific and Santa Fe trains chase their own tails on grueling 2.5 per cent grade on the San Joaquin Valley line

BY RICHARD HOUGHTON

Prosperity touched the pioneer settlers of the little foothill community of Caliente, Calif., in the spring of 1875. The Southern Pacific Railway's San Joaquin Valley line had been built from San Francisco to Caliente, and as the residents looked upward to the towering peaks to the southeast they knew that beyond a shadow of a doubt Caliente was destined to become the southern terminal of the line. No railroad would be able to surmount the 2734-foot climb between Caliente and the mountain range which lay only 16 miles distant. Settlers sold and resold their real estate holdings as prices skyrocketed overnight.

But they reckoned without the engineering genius of young William Hood, whose masterful twisting of the advancing rails, threading them 28 miles through 18 tunnels, extended the track to the summit a little more than a year later and earned Hood the title of chief assistant engineer of the Southern Pacific. He was later made chief engineer.

Caliente became a way station; 148 miles farther south the sleepy little Mexican village of Los Angeles became the terminal of the San Joaquin Valley line.

Most spectacular construction in the entire 483 miles from San Francisco to Los Angeles was near Walong, where Hood and his 3000 workmen and hundreds of horses pushed a short tunnel through a narrow ridge, looped the track around a hill and back above the same tunnel to gain 77 feet in the climb to Tehachapi and Summit. A train of 80 cars will fill the circumference of the loop, and long freight trains actually cross over their own tails in climbing the 2.5 per cent grade. On their roundabout way from Bakersfield in the valley they climb eastward over the summit, brake down gentler slopes to Mojave, roll straight southward across the

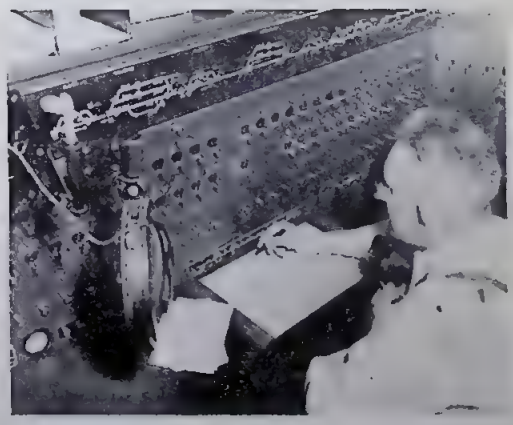
Southern Pacific.

The Tehachapi Loop ↑ as it appeared in 1876, shortly after completion of the line between San Francisco and Los Angeles.

desert and westward through the Santa Clara River canyon to Saugus, thence through the San Fernando Mountains to Los Angeles.

Construction was so difficult and costly between Caliente and the summit that this section has never been double tracked. Through 32.3 miles of centralized traffic control, installed in the summer of 1943, the dispatcher in Bakersfield controls the six single and six double sidings. In World War II this became one of the busiest single-track lines in the world, carrying more than 60 trains and light engines every 24 hours for a period of two years.

Rather than attempt to build another route across the Tehachapi Mountains, the Santa Fe Railway entered into an agreement with Southern Pacific shortly before 1900 whereby Santa Fe trains operate over SP track between Kern Junction (near Bakersfield) and Mojave, 67 miles. Thus Tehachapi Loop not only links



Southern Pacific.

The dispatcher at Bakersfield follows trains in the C. T. C. territory by means of a track layout like those in interlocking towers ↑. He controls trains by flipping electrical switches which govern sidings and signals along line. A record of movements is kept on moving tape in front of him. Jagged lines represent trains.

Woodford. Richard Houghton.

Over the Tehachapi

Southern Pacific and Santa Fe trains chase their own tails on grueling 2.5 per cent grade on the San Joaquin Valley line

BY RICHARD HOUGHTON

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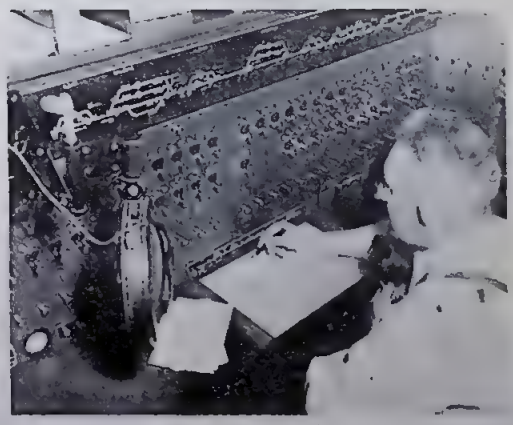

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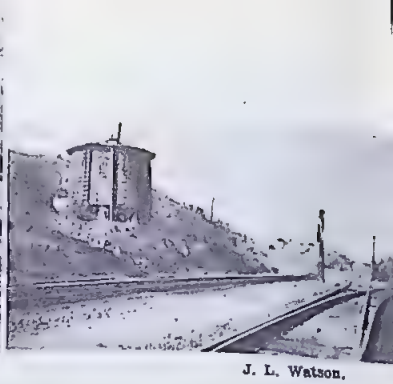


J. L. Watson.

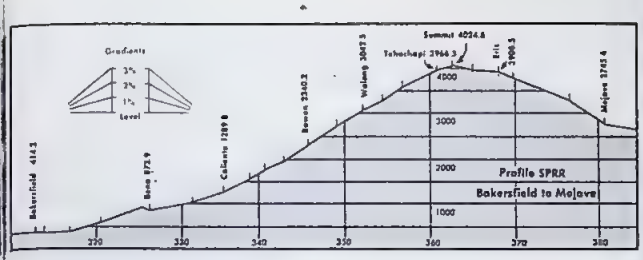
Southern Pacific.

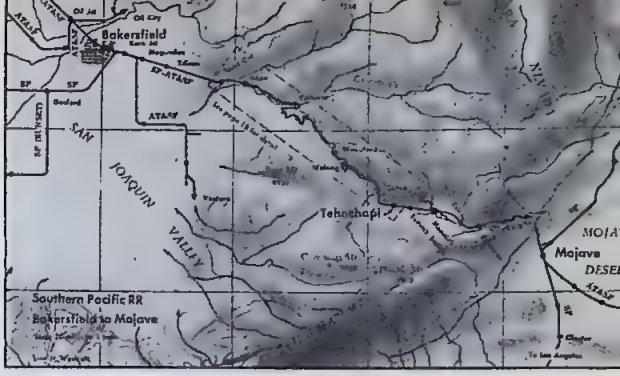
The throttling of Caliente as a railroad terminal was accomplished by draping a noose of steel around her neck ↖ and continuing on into the foothills and over the summit of the Tehachapi Mountains. The eastbound grade from Caliente runs 2.2 per cent and requires the use of three or more locomotives on long freights ←. The single-track Tehachapi subdivision handles trains of two railroads efficiently through C. T. C., which allows the dispatcher in Bakersfield to make meets according to conditions as they exist rather than as they might have been planned. ↑ Water tank and spout at Woodford.

The secret of successful centralized traffic control lies in having sufficient passing sidings. ← Tehachapi line has 10.

J. L. Watson, Richard Houghton.

↖ 1. A Southern Pacific freight train occupies a siding on the Tehachapi grade while a Santa Fe troop train passes. ↖ 2. A Santa Fe passenger train holds the main line westbound down Tehachapi grade. SP freight on siding. ↖ 3. Santa Fe No. 9 enters Woodford. This picture was taken in 1938, before the installation of C. T. C. ← Another pre-C. T. C. scene taken at Woodford in 1940. Four waterspouts are spotted near this station for the convenience of eastbound freight trains which are stopped with the first helper engine under its spout. The road engine runs ahead to another. The second helper cuts off and moves back to a third column, while the third also moves back to the fourth column. Tanks filled, the last engines move up for recoupling while the road engine backs down to the train.





Southern Pacific's southern California points with the Pacific Northwest but also serves all of Santa Fe's traffic from the East and from southern California to the San Joaquin Valley, central California and Northwest connections.

Steam passenger power used by the Santa Fe is of Mountain and Northern type (4-8-2 and 4-8-4) with tractive effort ranging from 56,800 to 66,000 pounds. The colorful blue and yellow Diesel-electric freight locomotives, whose 5400 horsepower produces a starting tractive effort of 220,000 pounds, are used mostly in the service for which they were designed although a few Diesels are used in passenger service over the grade in emergencies. Freight trains average 70 cars nowadays and require two helpers of the 2-10-2 Santa Fe type on loaded trains but no helpers on trains of empties.

Southern Pacific freights also average 70 cars. Helper as well as road engines are the 6000-horsepower cab-aheads with 117,000 pounds pull on the drawbar. Two helpers are usually needed. SP's top passenger trains on this route, the *San Joaquin Daylight* coach streamliners, are pulled by the colorful skirted General Service locomotives and a conventional black helper of the same class. Passenger trains of 14 cars behind cab-aheads go through without helpers.

Santa Fe's helper stations are at Bakersfield and Mojave, with Diesel shops at Bakersfield and Barstow. It turns some helpers at Eric on westbound* trains out of Mojave and on eastbound trains cuts out the helpers at Summit. Southern Pacific makes up its eastbound trains with full complement of helpers at Bakersfield, running the helpers all the way to Los Angeles with the exception of one that cuts out at Vincent, at the summit of the pull eastward from Mojave. SP has found that the use of heavier power over the full distance has cut down the average train time by three hours between Bakersfield and Los Angeles since 1943.

Handling the trains of two railroads, the dispatcher has a busy and fascinating job in

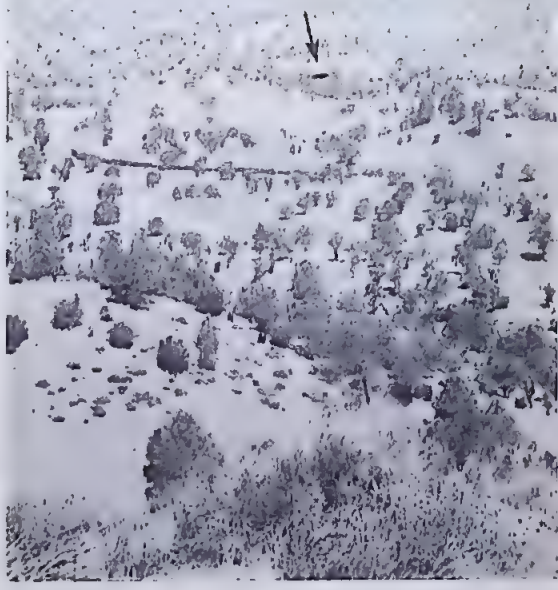
*Los Angeles to San Francisco.

G. M. Best, 511 Sierra Dr., Beverly Hills, Calif.

One whole freight train occupies a whole mountainside about a mile east of Tehachapi Loop ↑. The prewar San Joaquin Daylight streamlined coach trains usually didn't need helpers, but during the war were double-headed ↓.

Southern Pacific.

Dorman Photo Shop, Bakersfield, Calif.



↖ After crossing over itself on loop near Walong, line meanders onward and upward to Tehachapi, indicated in the background by arrow. Perspective is confusing; although line seems to descend, it actually goes up.

this district. Before centralized traffic control was installed, dispatching between Bakersfield and Mojave was through two dispatching offices by train order under double-track and single-track rules, supplemented by five remote control sidings. The line was equipped with lower quadrant automatic block signals. Now, with one set of dispatchers, the entire district is handled faster than it was with two. The C. T. C. board is in Bakersfield station, 16 miles west of where the C. T. C. territory begins at Bena.

A dispatcher handling trains over the Tehachapi is continually figuring to which siding he can move an inferior train to meet a superior train so as to get both over the district with a minimum of delay. There may be times when he thinks he has the trains moving in the best possible manner, and then out of a clear sky comes a report of engine failure or perhaps a break-in-two of a freight train ahead of a passenger train, causing him to remap his whole program. And there are times when the dispatcher has to call out sectionmen to patrol the track during heavy rains or snows.

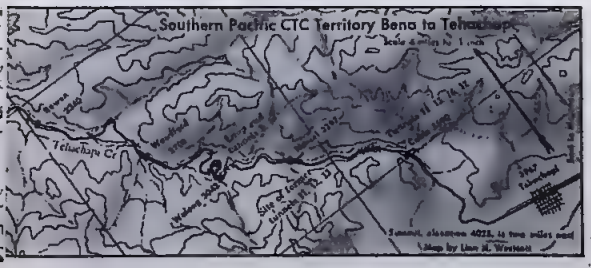
The trainmen, too, have problems peculiar to this district. Let's take a ride with them on an 80-car SP freight eastbound from Bakersfield.

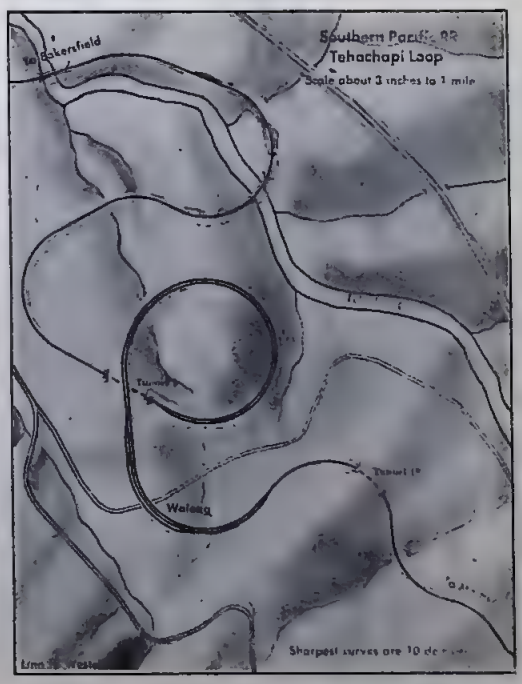
The engineers of the road and helper engines have inspected their steeds and tested brakes while coupling onto their various cuts of cars in the Bakersfield yards and bringing them together in a train. Four blasts on the whistle of the head, or road, engine are a request for a signal from the herder for the train to move onto the main track if the switches are all lined correctly for the move. Couplers stretch out, and the train rolls slowly from the yard track onto the main. All the engineers are working their locomotives very lightly.

Out on the main the train picks up to about 40 miles an hour five or six miles from Bakersfield, then slows slightly. At Sand Cut the road engineer eases off on the throttle and reduces speed before entering the descending grade,

Southern Pacific.

↑ A busy moment on the loop. Double-headed San Joaquin Daylight is descending around the central hill, headed for the tunnel. A long freight gets under way on the passing track in the foreground. On a third track, nearer the camera, stand the cars of a work train. Portion at left, taken from another photo, shows continuation of line toward Bakersfield occupied by a freight train approaching tunnel. Arrow indicates bridge farther down the line.





bunching the slack gently by using only his engine brakes.

Back in the caboose behind the rear helper the conductor is busy on his wheel reports and other duties, grateful for the easy way the engineer handles the train as the engine brakes are released in graduated steps to prevent a quick surge. The rear brakeman is stationed at the rear of the caboose, his duty being to watch the receding track, as in event of a derailment the marks will show on the ties and steps will be taken to stop the train before any great

damage occurs. In the cupola rides the swing brakeman, watching the train ahead.

We enter C. T. C. territory at Bena. Here the unseen dispatcher in his office back in Bakersfield takes direct control of the train and gives his orders through the wayside signals. He also moves track switches to set up the route. So closely do his instruments record the progress of the various trains in his territory that often he is able to bring them to perfect meets at sidings so they pass without either stopping.

The foothills are rising beside the track now, and below meanders Tehachapi Creek, first on one side, then the other. The grade gradually increases. The locomotives are working harder, with throttles wide open and the lever sometimes down below half stroke. Ahead is Caliente, and here the grade is at once evident even to an untrained eye as the train makes a sharp U turn in its escape from a pocket of the canyon.

The eastern slope ↓ of the Tehachapi Mountains contrasts sharply with the western slope. Railroading is rugged, but nothing like tortuous line west of the summit. Double track begins at Tehachapi and continues eastward to Mojave, where the Santa Fe swings off to Barstow and SP reverts to single track for the rest of the way to Los Angeles.

From the caboose the conductor looks upward to see the thundering road engine on the opposite slope. The brakeman in the cupola sees the whole sweep of the train as the front half climbs west and the rear half climbs east.

Rounding a slope high on the oak-dotted mountain we can look back down on the town of Caliente and sympathize with the people who thought a railroad could never be built beyond here. Now we are grinding through Allard, the stacks of all our engines blasting away at the sky, and at Bealville we take a siding for a descending passenger train. At Woodford, about halfway up the mountain, our climbing freight eases to a stop to take water, and the various engines cut out, the road engine moving ahead and the rear helper dropping back to different water columns. The center helper also has its individual spout.

Coupled together again, the brakes tested, the road engineer blows two blasts on his whistle for resumption of the struggle against the mountain. Just above Bealville is tunnel No. 5, longest and most difficult of construction. The caboose is shut tight until we are through.

Beyond Woodford is another gigantic U turn on one of the seven crossings of Tehachapi

Southern Pacific.

Creek, beginning a climb in which 587 feet is gained in about five miles. From one point it is possible to view the track in five different places as it winds its way around the hills and through the canyons. See picture on page 19.

After this crossing of Tehachapi Creek only the rear helper engine is visible from the caboose until we emerge from a short tunnel and see, considerably above and almost directly to the rear of the caboose, an engine rounding a bend. It looks like the head end of another train chasing this one on a closely adjoining track, but in reality it is the head end of our own train, chasing its own tail. We are on the Tehachapi Loop at Walong.

The loop really is almost two gigantic circles, with approach curves that add further to its twisting, and is truly one of the wonders of railroading. On the main loop is a long passing track, and when two trains are traversing the loop at once, in opposite directions, an observer stationed near the tunnel can watch what seems to be four trains moving in four directions.

Seven miles more of heavy climbing above the loop brings the train to the nearly flat summit of the pass, and another mile to Tehachapi station, where orders are hooped up by the operator at the end of C. T. C. territory. The original town of Tehachapi, an Indian name whose meaning has since been lost, was four miles west of the station but was moved when the railroad came.

Before tipping onto the downward grade the train stops for brakemen to set up the retaining valves on the cars. Halfway down the mountain another stop is made to allow the heat to equalize in the wheels. Retainers are used the rest of the distance, through open country of vast vistas dotted with Joshua trees and small desert growths, to the yards at Mojave.

Average time for a freight between Bakersfield and Mojave is about 4 hours 15 minutes, and for a passenger train, 2½ hours. Speed limit between Bena and Tehachapi, the C. T. C. territory and track of steepest grades, is 25 miles per hour for passenger trains, 20 miles per hour for freights, both ways.

Tehachapi, population 1264 (1940 census), sees heavy traffic in peacetime as well as in war due to its location on two transcontinental railroad systems. Here the third section of a Southern Pacific train, No. 810, stands headed east at the wooden Tehachapi station ↓. Soon it will start the descent of the eastern slope on its way to Los Angeles.

J. L. Watson.

How to Mash a Railway

Rail-water transfers, roundhouses, and shops were choice targets of Air Corps in ending usefulness of enemy transport system

BY CHARLES LAYNG*

During the height of the war, Axis railway facilities everywhere received a thorough and complete plastering from the air. When the B-29's roared out of China on their first operational mission, they headed for the Makusan railway shops near Bangkok, Siam. The three key railway yards for the Ruhr district, at Hamm, Duisburg Sud and Osnabruck, were each bombed over 100 times by the R. A. F. and our own air forces. Mashing of European railways was a huge aid to winning the war.

All of this was not done simply by sending planes out into the sky with instructions to bomb whatever railway facilities they might happen to find. There was nothing hit or miss in the methods used in briefing these operational flights. Immediately after Pearl Harbor dozens of groups began amassing information on industry in Axis and Axis-occupied countries. The Air Corps, and later many other branches of the Army and Navy, was vitally interested in transportation. With typical American energy, it was only a few months before gathering such intelligence was on a mass production basis.

Data on foreign railways was gathered by the Department of Justice, the intelligence sections of the Army, Navy and Air Corps, the Engineering Corps, the Military Railway Service, the Foreign Economic Administration, and the Office of Strategic Services. At one extremely busy period, trained investigators of the Securities and Exchange Commission were also used on railway studies. Later, the joint Army-Navy Intelligence Service joined in. The Army Map Service built up a fine library of railway maps. The Army's central photographic library gathered thousands of foreign railway views.

The eventual result was a series of elaborately documented reports, accompanied by thousands of exhibits in the form of photographs, drawings, and specifications. When our forces entered France and Germany, for example, they were equipped with reports giving the measurements, types of specialties, and dozens of other details on the cars and locomotives in use. They also had detailed studies available listing all main line facilities.

These reports also contained all sorts of other data of value. Did anyone want to know the organization of section gangs in Siam; the number of employees in the back shop at Temiswar, Roumania; the location of the power substations on the Italian electrified lines? They had only to call on us. Besides that, data as to, say, the attitude of the different racial stocks among railwaymen in Czechoslovakia toward British, American or Russian occupation were given in authoritative detail — information of importance to occupying troops. If such railwaymen could not be trusted to work with the invading army, obviously more American railroaders would have to be brought in; and this had to be determined in advance.

Other data supplied included detailed profiles of most main lines and actual reproductions of dispatchers' train sheets in many instances. There probably does not exist any such completely detailed reports on United States railways (except possibly in Japanese and German military intelligence files) as we produced on every railway in the world in enemy hands, or likely to be in enemy hands.

How was all of this overwhelming but vitally important data assembled? By American mass production methods.

First, a huge staff of trained librarians was turned loose for research in the libraries of this country. They combed out every scrap of information pertaining to foreign railways that could be found in books. Staffs of translators worked night and day on articles in foreign languages. A whole warehouse full of files of alien companies having offices here were seized by the alien property custodian. Months were spent screening transport data from these files.

Every railway supply company that had done export business was contacted, its foreign representatives interviewed and its files

*During the war, transportation expert, Economic Intelligence Section, War Division, United States Department of Justice.

Hamm, Germany, had useful railway facilities and thus became the target for American bombs. These Signal Corps photos, taken in April, 1945, show some of the damage at station ← and to shop buildings at left of yards, background ↗.

searched in the unending quest for data. A special section of the Federal Communications Commission monitored foreign radio programs and any news as to railway developments was sent to us at once. Representatives located in Switzerland bought German technical publications as soon as they were issued, had them microfilmed and the films flown to the United States for immediate distribution to the intelligence agencies. Japanese of American birth who had visited the Orient were interviewed in the Army, in concentration camps, or wherever they happened to be. Americans known to have traveled abroad were interviewed by the hundreds. This produced, among other things, a most complete set of foreign railway timetables which were invaluable when used in connection with other data. All missionary societies were contacted and representatives who had lived long abroad were interviewed. This activity unearthed a medical missionary who was also a dyed-in-the-wool railway fan and gave us invaluable data on Chinese railways.

One or the other of the agencies also unearthed numerous foreigners then in this country who had been employed on foreign railways. One refugee who had been chief mechanical engineer on the Reichsbahn (German State Railway) was of invaluable aid, as was a Korean engineer who had been on the staff of the Imperial Government Railways of Japan. The agencies also dug up and questioned hundreds of Americans of foreign birth, not necessarily railwaymen, who came from the large European centers.

All this research, all these interviews, produced a staggering amount of data. From some sources only the merest scrap of information could be gathered; from others veritable treasure troves were met with; but all the data collected was classified. The men who knew most about foreign railways were recruited, the data placed before them, and the flow of reports on railways began.

An American citizen who had run an English language news-

Trackage, shop buildings, locomotives, and rolling stock all took a terrific beating in yards at Zweibrucken ↑ and Neumunster ↓. Signal Corps photos.

paper in Bangkok, Siam, said he had heard that the Siamese railway system of some 3500 miles had only one shop where locomotives could be repaired. He didn't know where it was or anything about it. However, an interviewer was immediately dispatched to a locomotive builder's representative who had been in Siam, who confirmed this and gave us the location of the shop. The files on Siam produced an annual report of the Siamese railways for 1938 which had some excellent photos of a railway shop, but the captions and reading matter were in Siamese. A hurry call went out for a translator and we found one quickly. Data as to the shop began to emerge and the net result, not too long after, was block busters (the first ever dropped in action by B-29's) hurtling down on the Makusan shops, clear across the world. Reconnaissance photos flown back a short

time later showed what a hash had been made of the shops, crippling the whole Siamese railway system.

In another case, a researcher combing an English language magazine published in Shanghai, China, came across a complete description, with views from the air, of a locomotive plant in Poland. The reason it appeared in the Chinese magazine was that the Polish plant had sold some locomotives to China shortly before the war. Our bombers had just put Poland within the range of their operations. Our next step was to procure a map of the city where the plant was located. Then we asked leaders of the Polish communities in Chicago and Cleveland to produce people who came originally from that city. Among them we found a man who had actually worked in the plant, and through him we located the plant with pin-point accuracy.

One of the first things we studied was what had happened to the British railways during the 1940 blitz. By the time the B-17's began operational flights over the Continent, the science of bombing had advanced far beyond what it was in 1940, but we wished to have background from which to work.

Through the bitter experience of the British railways and through reconnaissance photographs of railways bombed by ourselves on the Continent, we learned much. The important thing was that railwaymen everywhere are so accustomed to fire, flood and disaster that they can get badly damaged facilities back in service very quickly.

Tunnels are so protected from air attack that they are difficult to damage. However, in 1940, a huge German bomb hit London just at the spot where the roof of an important tunnel was only eight feet underground. This lucky hit mashed in the roof for a distance of some 50 feet and the roof, in collapsing, dragged most of the sidewalls down with it. This tunnel was out of service for months, but our bombers were never lucky enough to make a similar hit.

Bridges seemed an obvious target, but the British experience indicated that the game was not worth the candle. On bridges having superstructures, the bombs usually exploded relatively harmlessly several feet above the deck. On open-deck bridges, they usually crashed through the ties and exploded in the water. Piers, the vulnerable parts of bridges, are protected from above by a good deal of "armor plate" as represented by the superstructure, if any, and the deck. The Germans, as well as our forces, had large supplies of prefabricated bridge material on hand and, except in unusual cases, air attacks on rail-

way bridges put them out of service only for a matter of hours. One exceptional case was the huge, important four-track bridge across the Rhine at Cologne, Germany. A British bomber scored a lucky hit on this structure which dumped so much of it into the river that repairs took months.

The R. A. F. had been plastering railway yards indiscriminately. However, our intelligence developed which yards were equipped with car retarders, and we concentrated on those. For one thing, the retarder tower, full of delicate and irreplaceable machinery, was a beautiful target, easily picked out. For another, any bombs that fell in the yard would destroy part of the track brakes. With the light European freight cars, grades in the retarder yards were so steep that manual humping was extremely difficult and slow and, besides, required additional man power in the form of car riders. In the retarder yard at Rennes, France, a lucky hit struck the exact point where several yard tracks covered an underpass and dumped a large segment of the yard into the street below. This yard never was put back into operation by the Germans.

Outstanding railway targets were shops and roundhouses. The advantage here was that, not only was the shop building destroyed, but machinery difficult to replace was also smashed, along with any locomotives that happened to be in the shop at the time.

The choicest targets, though, were rail-water transfer terminals, which abound in Europe. Here, railway tracks were invariably located on docks which could be blasted into the water with relative ease. Also, such transfer points included warehouses full of war material which was largely destroyed during a raid. If such warehouses contained ammunition, a beautiful display of highly destructive fireworks usually resulted, thus adding greatly to the effectiveness of the bombing.

During the blitz, the Germans concentrated on British railway passenger stations. They made hash of several of them. Obviously, a huge station makes an easily identifiable target, but even if it is destroyed, the interference to transportation is negligible. Passengers could and did board passenger trains in the freight yards after stations were destroyed. Except in cases where it was known that there was a cencentration of troop trains in the station, or when a bomber driven away from a primary target would jettison its remaining bombs, railway passenger stations were not very high on the list of target priorities.

To the true railway fan, the destruction of railway facilities, even enemy railways, somehow seems wanton. After reflection, though, and a consideration of the number of American lives saved by crippling enemy transportation, this feeling passes. Few thrills are comparable to riding in on a Flying Fortress to the identification point near a yard, where evasive action must cease and a straight flight at the target begin. "ME's at 8 o'clock, 10 o'clock, 12—hell, skipper, they're all around the clock," comes in from the tail gunner in an Arkansas drawl. The first element has left the yard a blazing inferno. Have you ever seen a freight car leap into the air for about 100 feet—then slowly disintegrate before it hits the ground? That's quite a switcher below that just suddenly ceases to be as the combination of a bomb and a boiler explosion wipes it off the face of the earth. The yard office is suddenly chopped off to its floors as though by a gigantic scythe.

"Bombs away!" and a sigh of relief as the P-38's gather around to protect the homeward journey.

The German communique the next day (they were never noted for accuracy) might well read: "The enemy made an abortive raid last night but were driven off by our gallant fighters. One of our railway yards is missing."

The big bombers were not the only planes which blasted at enemy railways. The railway line serving the huge Nazi submarine bases at Lorient and St. Nazaire traversed the Brest Peninsula just a short hop across the Channel from British air bases. Every day a fleet of Mosquitoes would cross over to strafe locomotives. Originally, the technique was to spot the train from about 10,000 feet, then dive down and zoom along close to the car tops from the rear of the train and give the locomotive a burst in passing over it. The Germans put a stop to this tactic by installing antiaircraft batteries on a car in the middle of each train. These threw up a curtain of fire when the train was attacked and, in traversing the length of the train, the Mosquitoes flew into it and were downed.

A countertactic was developed immediately in what was known as the figure 8 attack. After spotting the train from a considerable height, the planes would roar at the locomotive from the side at an extremely low level. Just before reaching the locomotive they would go into a tight turn and fire a burst as they roared across the tracks. They would then sweep into a reverse turn and come roaring back, giving the locomotive another burst. In this tactic the plane actually described a rough figure 8 in crossing and recrossing over the locomotive.

This extremely low-level flying was known as "rhubarb flying." A duchess asked a British sergeant pilot if this meant flying at treetop level. "No, your grace," he assured her, "we wuz a-sittin' there lookin' up at the tree tops." Actually, he was not exaggerating.

Cars and tracks were demolished at the Munich station ↑. Signal Corps photo.

Dutch Railways During the War

Before the Germans occupied the Netherlands in 1940, Holland's railway system was one of the best in the world, with sleek electric ↘ and Diesel-electric ↗ trains. Passenger accommodations allowed a clear view of the track ahead ↑.

The one-man engineers' compartments were efficient, clean, and comfortable, with seat in center of cab ↑.

All photos courtesy Netherlands R

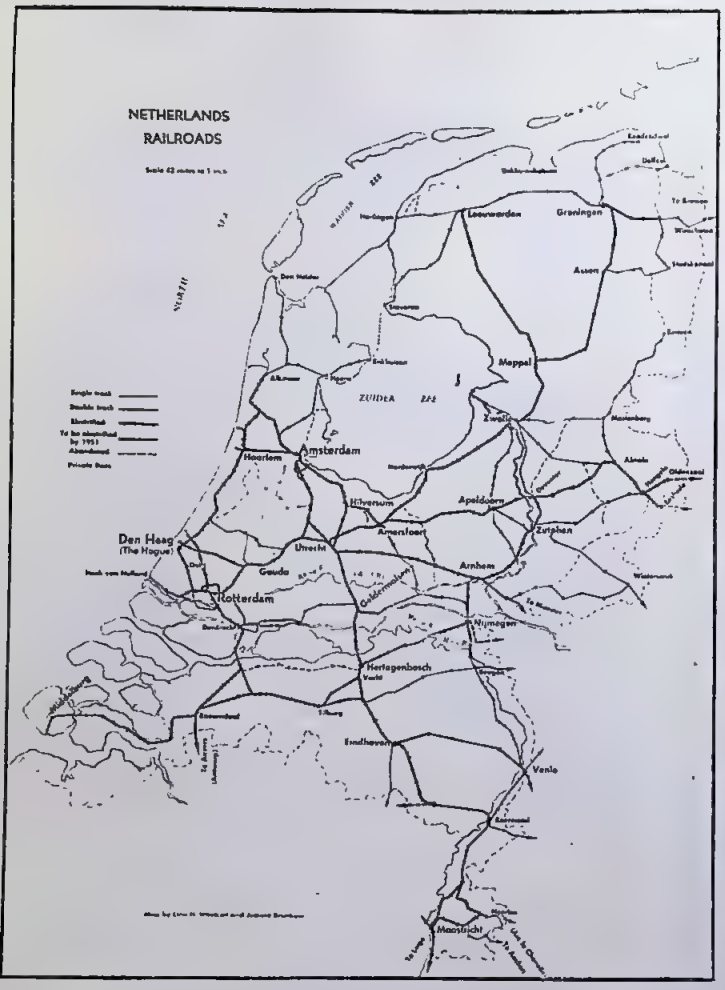
Passenger traffic was more important than freight traffic in prewar Holland, as most freight went by canal. Electrification was devoted to passenger trains only, and what freight went by railroad was hauled by steam even on the electrified lines. Electric "locomotives" were merely multiple unit cars with passenger accommodations in each. Sleeping cars were unheard of except on international trains, as distances in Holland are short and even the longest trips do not exceed 200 miles. The Germans made good use of this modern railway system during their occupation of Holland, upping its freight capacity by double-heading and triple-heading passenger power units on freight trains. But on September 17, 1944, the government called a general railway strike to help the Allies who were making their first airborne landings in Holland. The ultramodern streamlined trains ↑ ceased operations. Along the entire system the signals were set at "stop" ↗. Yards, once the scene of great activity ←, became dead as current stopped flowing through the overhead wires. For seven months stations were deserted →.

Then the Germans took revenge. Their fury was unleashed and the systematic destruction of the Netherlands Railways was begun. And it was thorough. The hobnailed boots, which had trampled down and wrecked so much of Holland already, began their furious destruction of trains, railbeds, switches, bridges, stations and machinery on a scale that put everything they had done up to then in the shade. Sleek trains ↑ were shell-ridden and torn ↗. With touching concern for the welfare of Dutch children, the Germans transformed busy yards ↙ into safe and quiet playgrounds ↓, removing rails, ties, switches and signal boxes, and anything else that might be of the least danger to the frolicking children. Overhead wires on the electrified divisions became tangled skeins of useless copper wire ↗. Of 866 steam locomotives, 274 were destroyed and 448 were stolen for use in Germany. Only 750 out of 2060 miles of line were left usable. At the end of the war 28,543 out of 29,616 cars were missing, others were useless →.

Rails that were not torn up entirely were blown up simply by placing dynamite where it would do the most damage ↑. Stations were shelled to roofless, windowless ruin ↗. Eighteen bridges, such as the one near Vlake in Zeeland, were toppled into the river or strewn over the ground.

All streamlined electric trains and all Diesel streamliners were either stolen, mashed or heavily damaged; 72 stations were completely destroyed. The railroad shops at Haarlem lost 95 per cent of their equipment to the Germans; the shops at Utrecht, 98 per cent.

By V-E Day it looked like a task of many years even to clear away the mess. Nevertheless the Dutch railroaders started their work and, although nearly all materials, tools, and machines were missing, hard work alone made rapid reconstruction possible. Six months after liberation, 1667 miles of line, or 85 per cent, were again in use. A year later, practically all of the prewar mileage had been restored to service. Eleven of the 18 large bridges which had been destroyed were rebuilt, and reconstruction of the others is now nearing completion.



The Dutch railway reconstruction program is ambitious, with electrification of all important lines by 1950 the goal. Passenger trains will speed at 90 to 100 miles per hour over electric lines, 75 miles per hour on nonelectrified branches. Freight will also be hauled by electric and Diesel locomotives. Today, freight goes by steam. Bridges, such as the one at Oosterbeek ↓, were rebuilt out of the remains of innumerable other bridges; even a piece of London's old Waterloo bridge went into the new Oosterbeek span. Emergency bridge on duty ↘.

↑ Passengers on Holland's railroads today find little comfort, but they are glad the trains are running. The station scene is typical of the crowds which squeeze themselves into the few available coaches. So short is passenger equipment that many passengers are accommodated in cattle cars. But they have much to look forward to, including a new direct line to serve Amsterdam, Rotterdam and The Hague with fast, frequent trains, and underground approaches to these cities.

Steam & Champagne

Bath & Hammondsport Railroad, once a part of the Erie, now totes fine wines as an independent short line

ARTICLE AND PHOTOS
BY HORACE D. RUNEY

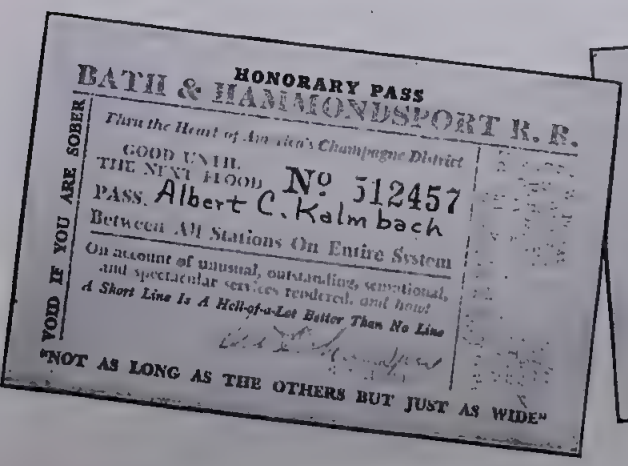
The Bath and Hammondsport Railroad is a picturesque short line in south-central New York which owes its existence to grapes and the wine thereof. The surrounding countryside near Hammondsport and the rolling hills embracing Keuka Lake are lush with bountiful vineyards, and the business of marketing the products of the vine and the world-famous wine cellars is the concern of the entire community.

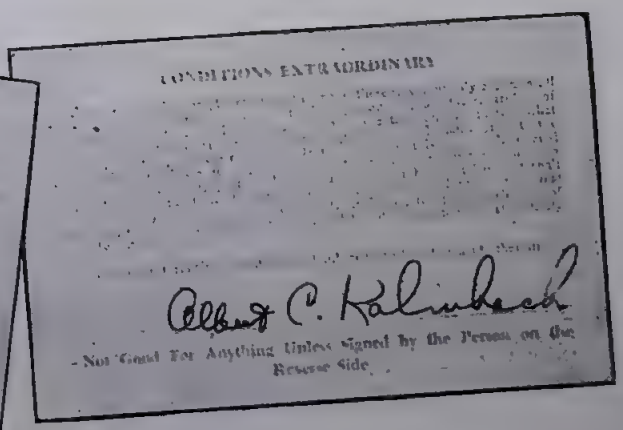
Everyday except Sunday, a trim little freight train pulls out of the well-maintained station at Hammondsport about noontime. No railroad station in the country can boast a more scenic location than this one at the end of the B&H, on the shore of beautiful blue Keuka Lake, one of New York's famous Finger lakes. Usually five or six cars make up the train, with the trim, neatly painted side-door caboose coupled on the end. The caboose is a rolling advertisement for the road, with its bright paint and big letters proclaiming that it belongs to the B&H, "The Champagne Route." Conductor Doug Stratton is as proud of his hack as Engineer Bob Ostrander and Fireman Miles Ellis are of their trim little Mogul.

Oftentimes switching has to be done at some of the seven stations along the line — a car or two of wine, maybe, from Taylor's cellars at Rheims. Once out of Rheims, the little locomotive gets set to tackle the long grade which extends most of the way to Bath. The toughest stretch is near the State Fish Hatchery, where the climb is 2½ per cent, and No. 11 sounds as if she were coughing her heart out as she patiently drags a six- or seven-car train over the twisting rails. From the Steuben County Farm into the station at Bath the going is all downhill and the train drifts quietly down this side of the ridge.

At Bath the train is broken up at the Erie station and cars for Hammondsport and stations along the line are made into a train for the return trip. Since no turntable nor wye is available, the locomotive runs backward from Bath to Hammondsport. The return trip is relatively easy going, and once the ridge is topped just outside of Bath, Fireman Ellis can get up on his seatbox and enjoy the luxury of a much-needed breathing spell.

Late in the afternoon the crew's work is finished for the day and No. 11 is gently backed into the enginehouse. The little railroad and its picturesque train are deeply rooted in the lives of all who live along it, and it seems to be as much a part of the quiet countryside as are the hills and woodlands and the sprawling acres of grapes that look down upon its right of way. There is no prettier sight in all the world than





See page 38.

Fireman Miles Ellis lends a hand with switching. ↑ Here he gives a back-up signal as Engineer Bob Ostrander eases the 11-spot down the B&H main for a coupling. The Hammondsport station appears in the background. Soon the train will pull out of Hammondsport (pages 36 and 37) for its nine-mile trip through rustic scenery ↓ to Bath. Bottom photo was taken on the grade between the State Fish Hatchery and the County Farm. The maximum grade of 2½ per cent is about ¾ mile behind the train at this point. Looking down from the vineyard-covered hillsides (background, above) the train resembles a tug pulling scows through a sea of waving grain in the valley, so narrow is the right of way in some places.

to watch No. 11 pulling its tiny train along the wandering winding tracks through Pleasant Valley. The line curves here and there through a barnyard and sometimes runs alongside a crystal stream where big trout lie along the mossy banks; sometimes the train seems lost among the groves of big elms and oaks that arch over the tracks. It's a page out of yesterday's age of little engines and little trains. The Bath & Hammondsport is only nine miles long, but it is nine miles of the kind of railroad that is very close to the hearts of all America.

The little road was originally built in 1875 as a narrow gauge line to connect the lakeside town with the six-foot-gauge Erie Railroad at Bath. Hammondsport until then shipped its fine table wines and champagnes by means of steamers on Keuka Lake to Penn Yan, where connection was made with the Fall Brook Railroad. Growing conditions in this section are similar to those of the Rhine River Valley in Europe, and the vineyards which were first established in 1850 produced so abundantly that soon more vineyards and wineries were established. By 1870 grapes and wines were being produced on so large a scale that the water route to Penn Yan became inadequate. The Erie Railroad, which ran a branch line between Corning and Rochester, passed nine miles southwest of Hammondsport. The Bath & Hammondsport was built as the connecting link which made all-rail transportation from the wineries possible.

Considerable traffic was handled, and the road was for many years a good investment for the men who had built it. After operating its three-foot tracks for about 14 years, it was rebuilt to standard gauge in 1889. In 1903, the Erie acquired control of the pike.

The B&H once operated a busy and profitable passenger service between Bath and Hammondsport, where its trains connected with the lake steamers. Hammondsport was the scene of flying boat trials by Glen Curtis, and these trials attracted thousands of sightseers. Nearly all were carried to and from Hammondsport by the B&H varnish. Passenger service was discontinued in 1917 at the same time the Keuka Lake steamers ceased operations. The little road was taken over by the United States Railroad Administration in January, 1918, after which it was operated by Erie through the Prohibition years.

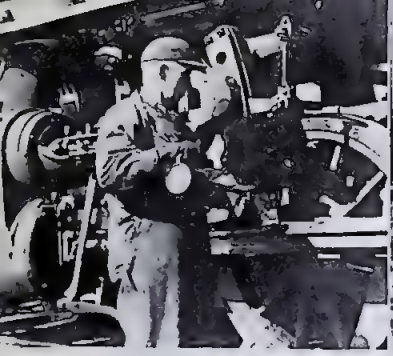
By 1930 the line as an Erie branch was fighting a losing battle against highway competition, and freight and express receipts were falling off alarmingly. Finally, after several lean years,

the New York State flood of 1935 put an abrupt end to the road's struggles. Near the State Fish Hatchery the right of way was completely destroyed for more than a hundred yards and other parts of the road were severely damaged. It looked like the end of the B&H. and no doubt the Erie looked upon the flood as a providential means of getting rid of its nine-mile liability once and for all.

But the Bath & Hammondsport wasn't through yet. In fact, it was at this point that it was given a new lease on life due to the initiative and faith of five men.

Immediately after the washouts of 1935, the Erie leased a truck line to operate between Bath and Hammondsport and filed a petition with the I. C. C. to abandon the railroad. At the hearing, the Erie stated that the B&H had been operating at a loss for several years and that the community which it served showed little interest in its operation. This was unfortunately true. In many similar instances the economic and social value of small lines and branches has not

While Hammondsport is a point of great interest to railfans, including as it does the storage of two famous characters from Railroads on Parade at the New York World's Fair (a replica of Central Pacific's historic Jupiter and a Lackawanna Mother Hubbard), Bath, at other end of line, takes on added interest when the B&H arrives to make connection with the Erie. With his train "in the hole" for Erie passenger train No. 468 at Bath, Conductor Doug Stratton impatiently checks the time ↑. Then the work of interchange begins, and Fireman Ellis finds it necessary to run while steadying the pole with which No. 11 pokes its six-car train out of a siding onto the main iron of the Erie's Rochester Division ↓.



Engineer Ostrander oils around while "in the hole" for Erie 468.

Conductor Stratton bends a rail on the Erie's Rochester Division line.

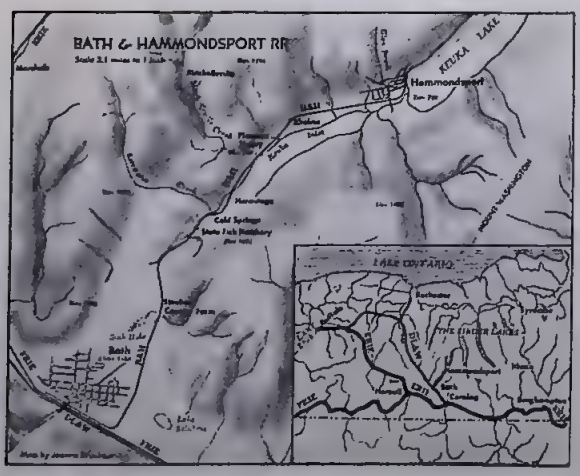
No. 11 takes a heavy (for her) drag up a rural hill near the State Fish Hatchery.

been appreciated until they were abandoned.

Wine company executives and coal and lumber merchants persuaded the I. C. C. to withhold decision on the abandonment for a few weeks. It was good business, mixed with a liberal portion of sentiment, which prompted them to try raising sufficient funds to take over the line. The community as a whole favored retaining the railroad, but would not back the venture financially. Just when it appeared that the little carrier was certain to be torn up, five Hammondsport men got together and took matters into their own hands. D. W. Putnam, F. C. Taylor, C. D. Champlin, R. H. Howell and U. S. Arland agreed to purchase the B&H from the Erie complete, lock, stock and barrel, and with more of their own funds they put the line back in operation. Operating management of the road was given to Arland by the good old American custom of pulling the short straw.

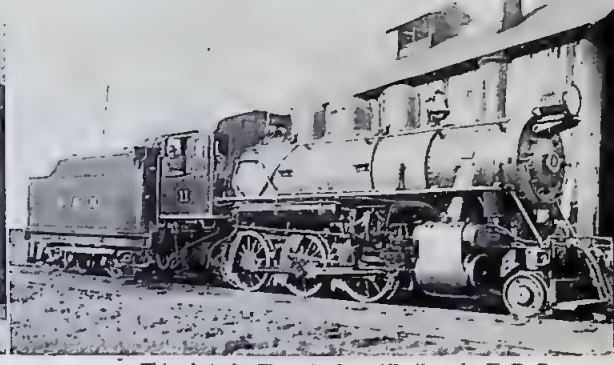
It was a great day for Hammondsport and especially for the five new owners when the line was reopened on the Fourth of July, 1936. Engine 860, a Mother Hubbard acquired from the Erie, puffed happily along the resurrected right of way, her whistle screaming and her bell ringing out the good news that the B&H was in business once again.

A few weeks after the first run on the rejuvenated railroad, the owners decided to celebrate their entry into the railroad business with a real blowout, and on July 25 they threw a party that is still talked about in railroad circles. Invitations were issued to more than 100 railroad officials to attend the big event. The guests were met at the Erie and Lackawanna stations in Bath by a special train, the *Wine Special,* which consisted of two coaches rented from the Erie for the occasion. In the manner of real old-time railroad opening celebrations, the special train was complete with all the trimmings, including a band. Guests were carried to Hammondsport, where they climbed down from the coaches and were taken to the Glenwood Club on Keuka Lake for a prolonged session of wining and dining in the famed Hammondsport tradition. It was in such a spirit of revelry and optimism and good Finger Lakes champagne that the Bath & Hammondsport began its new start in life.



Shortly after the line was put back in operation a venerable combination car was purchased from the Erie and was put to work hauling express and l. c. l. freight shipments. The combine, with its six-wheel trucks, was just about all the ancient engine could handle on the heavy grade near the State Fish Hatchery. Outside of being a good steamer there wasn't much of anything else that was right about the old Hubbard. Built in 1889, she was too high and too heavy for the 60- and 90-pound B&H iron and had an annoying tendency to leave the rails at the slightest provocation. Owing to the condition of the roadbed this happened quite frequently.

In an effort to keep the 860 from wandering off the right of way Arland issued



This photo by Theo. A. Gay. All others by H. D. Runey.

The B&H uses Erie facilities (including the water tank) at Bath. Part of express on truck will go to Hammondsport.

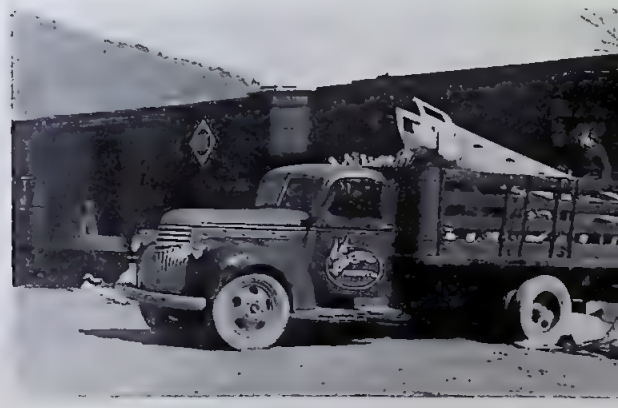
When the B&O bought No. 11 from the Narragansett Pier Railroad it changed the lettering but kept the number.

an order restricting the speed over the entire line to 10 miles an hour. This ruling helped matters considerably, but one winter day the engineer spotted a snowbank ahead of the train and opened the throttle to make a run for it. Old 860 hit the drift good and solid, but when she finally stopped she was on her side in the ditch. That snowbank cost the struggling company almost $2000, and it cost the engineer his job.

The following spring Arland found that the old engine was burning about three tons of coal a day just to haul the lumbering 100,000-pound combine up and down the line. Keeping her in running condition was also costing more than the owners could afford to spend for maintenance. He acted quickly to rectify this unprofitable situation. Both old 860 and the ponderous combine were relegated to the scrap heap. A trim, sightly Mogul, No. 11 was purchased from the Narragansett Pier Railroad. This little engine was built by American in 1921 and was destined for shipment to Cuba. Due to political upheavals in Cuba at the time, the engine was never shipped abroad but was bought by the Rhode Island Company. The B&H purchased her in April, 1938, and about the same time a caboose was acquired from the Erie to take the place of the old combine. Formerly Erie 04651, a standard end-door type, the car was rebuilt by the B&H track foreman and his crew into a roomy side-door crummy that has proved ideal for hauling express and l. c. l. freight.

Since the acquisition of No. 11, the little railroad has been serving faithfully and profitably. Two thousand ties each year have been replaced, a shop and enginehouse have been built at Hammondsport, and No. 11 and the caboose have both been paid for out of the road's earnings. Taxes and all operating expenses are likewise met out of the line's revenue. The top-heavy financial structure of the B&H was rectified by the fortunate passage of the Revenue Act of 1939, whereby the $300,000 worth of bonds which

A good customer of B&H is Mercury Aircraft Company of Hammondsport. Truck receives incoming freight ↓.



had been acquired in purchasing the railroad were canceled, leaving the company with no bonded indebtedness and only $100,000 in common stock. General Manager Arland gives much credit to the help forthcoming from the American Short Line Railroad Association during the straightening out of the B&H's financial affairs. Inexperienced as all of the new owners were in railroad matters, they leaned heavily on the association for all sorts of help and guidance.

Today the Bath & Hammondsport is financially sound, is doing a brisk freight business, and can face the years ahead with far more confidence than many much larger roads. Although operating revenues have dropped from the peak reached in the early '40's and 1944 showed a net loss of $5128, the figures for 1945 show a net income of $571 after all expenses, or 57 cents a share. There is much talk of a new salt works to be built at Hammondsport which will give the railroad more than a dozen additional cars each day. To handle this business, the road will have to purchase additional motive power and lay heavier rails.

Opposite lower Manhattan on the west bank of the North River is Jersey City, N. J., eastern terminus of the Central Railroad of New Jersey and of the Reading and Baltimore & Ohio, which use CNJ tracks and terminal facilities. Passengers of all three roads are delivered to New York City via ferry. Besides handling its own freight in its Claremont yards southwest of the passenger terminal, the Central serves B&O and some Reading freight from connections at Bound Brook, the Reading using its own Port Reading facilities and the CNJ yards while the B&O detours to yards on Staten Island. Central switcher No. 101 ↑ backs a Reading passenger train into the stub-end terminal at water's edge. New York skyline in background. Service tracks → outside main Jersey City roundhouse.

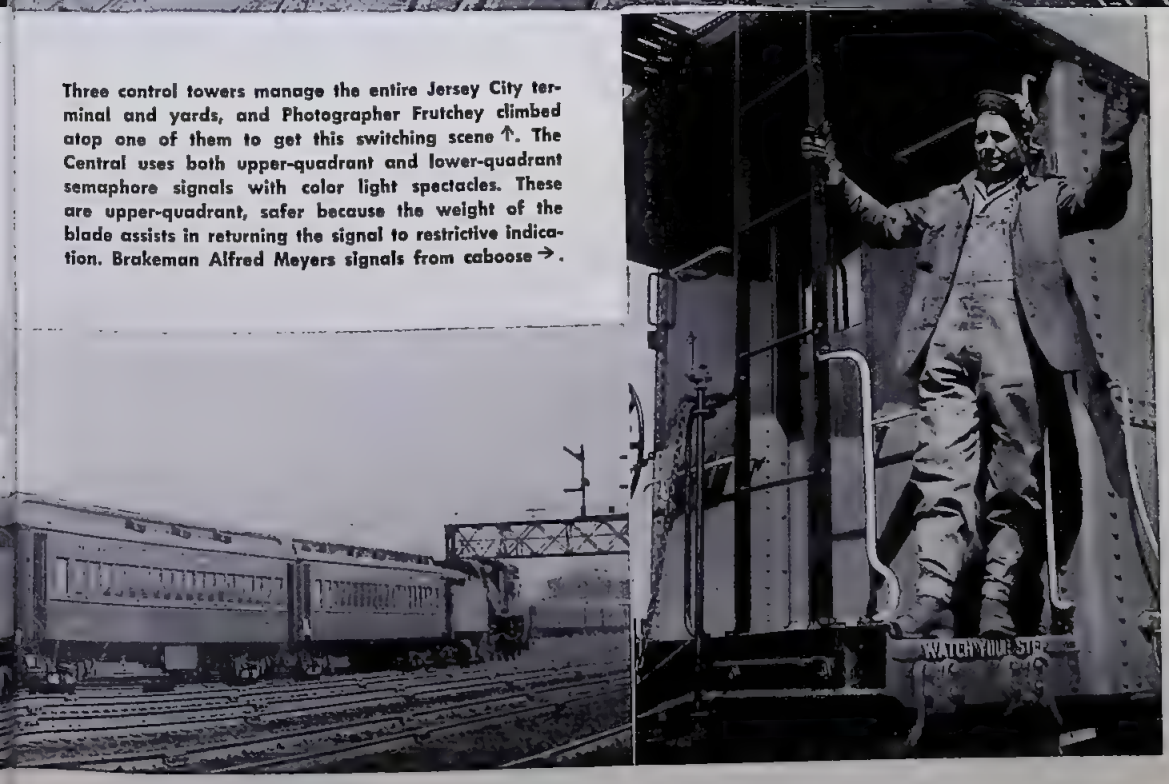
Jersey's Own Railroad

Central Railroad of New Jersey maintains extensive terminal facilities at Jersey City to serve three railroads

SEVEN PHOTOS BY WM. R. FRUTCHEY

The Jersey Central operates an extensive commuter service which accounts for more than half its total passenger train mileage and about a third of its passenger revenues. ↑ Four coaches and two head-end cars trail camelback 757 out of the Jersey City yards. Following damage to the bridge over the Hackensack River when rammed by a boat, former through commuter service between Jersey City and Newark is now cut to two runs from the stations to the river. As turnaround facilities are unavailable at the river, trains carry an engine at each end ↓. Locomotive servicing ←.

Three control towers manage the entire Jersey City terminal and yards, and Photographer Frutchey climbed atop one of them to get this switching scene ↑. The Central uses both upper-quadrant and lower-quadrant semaphore signals with color light spectacles. These are upper-quadrant, safer because the weight of the blade assists in returning the signal to restrictive indication. Brakeman Alfred Meyers signals from caboose →.



Hannibal's Railroads

PHOTOS BY HENRY J. McCORD

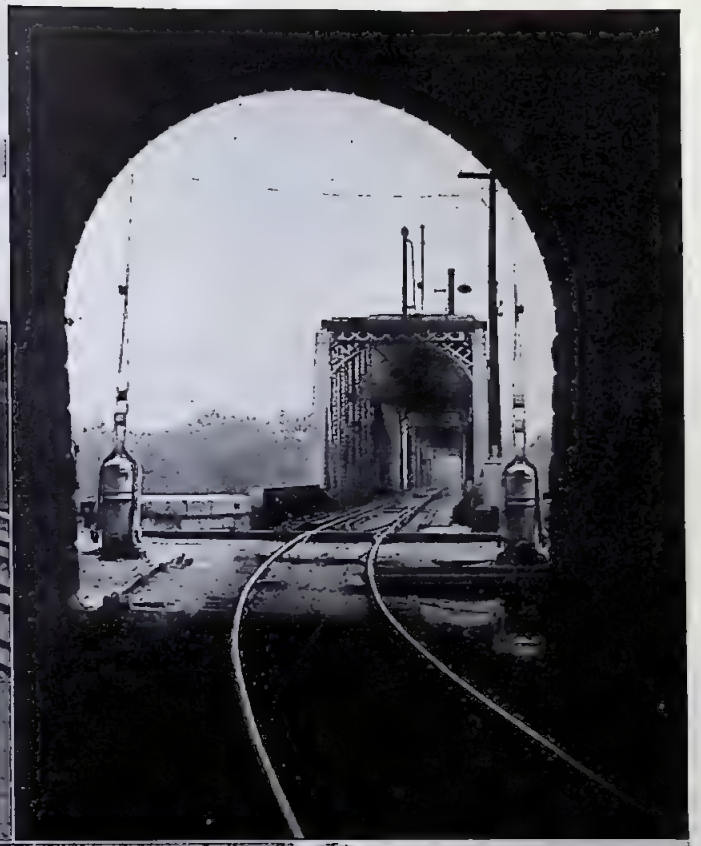
The Hannibal Connecting Railroad has more miles of sidings than of main line: 4.31 as compared with 2.87. It connects the Universal Atlas Cement Company plant ↑ with the Burlington line from St. Louis a few miles south of Hannibal at Ilasco →, owns three saddle tank locomotives and 93 cars, 28 of which stay at home hauling rock and gypsum for the cement mill ↓. A picturesque enginehouse ↗ nestles in the lush Missouri foliage at the end of the line. Tom Sawyer would have loved this.

Hannibal, Mo., steeped in the lore of Mark Twain's "Tom Sawyer" and "Huckleberry Finn," is served by three railroads: the Burlington, the Wabash, and the 2.87-mile-long Hannibal Connecting Railroad. Until 1944 it was also served by a fourth, the St. Louis & Hannibal, extending 33 miles to Bowling Green, Mo. At one time the Missouri-Kansas-Texas also operated trains into Hannibal, but since 1923 this line has been used solely by the Wabash under a 99-year lease with option to purchase during the term of the lease.

Hannibal sees four streamliners daily on the Burlington route, the *Mark Twain Zephyrs* operating between St. Louis and Burlington, and the *Zephyr-Rockets* operating between St. Louis and Minneapolis. The Burlington maintains yards and shops at Hannibal.

ILASCO

Northward from Ilasco the Burlington continues to its yards at the south end of Hannibal ↑. The "Q's" shops are barely discernible in the distance. Reminiscent of grammar school geography books, this picture illustrates four means of communication: highway, telegraph, railroad and waterway. The famous Mark Twain Cave is only a short distance from this spot. Out of sight behind the bluff, and beyond the Burlington shops, is downtown Hannibal and the connection with the Wabash Railroad where it swings in from the west on leased M-K-T track. The Wabash parallels the "Q" northward through Hannibal, then dodges through a 100-foot tunnel ↗ to cross a street, the Burlington tracks, and the bridge over the Mississippi River. The bridge was purchased from the Wabash-Hannibal Bridge Company in 1943. The Burlington continues to follow the west bank of the river to its main line opposite Quincy and beyond as far as Burlington, Ia. This → St. Louis bound Burlington train is viewed from the Wabash bridge. Locomotive is No. 2927, a Pacific built by Baldwin



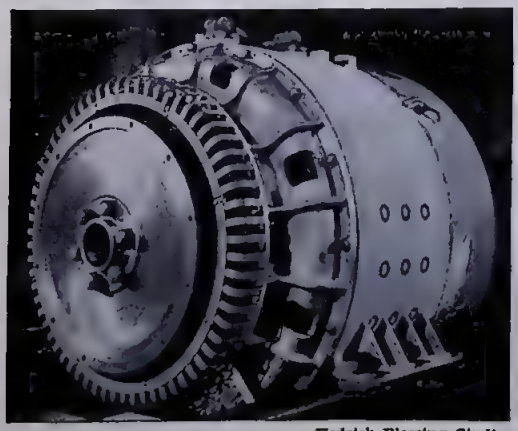
Eastbound from Hannibal, engine 694, a Pacific (vintage of 1906), trundles a string of Wabash varnish through the tunnel and across the bridge ↑ toward Springfield, Ill., and points east. A locomotive and caboose arrive on the Missouri side of the river →. Notice rail crossing gate in down position at extreme right of picture. Photo at far right → shows entire bridge, a swing type to allow passage of river traffic. Missouri foliage in foreground. ↗ Back in downtown Hannibal, a Wabash freight swings onto the leased M-K-T tracks.

Electro-Motive's F-3

Flexible design can be altered to meet railroad's changing power requirements

Electro-Motive Corp.

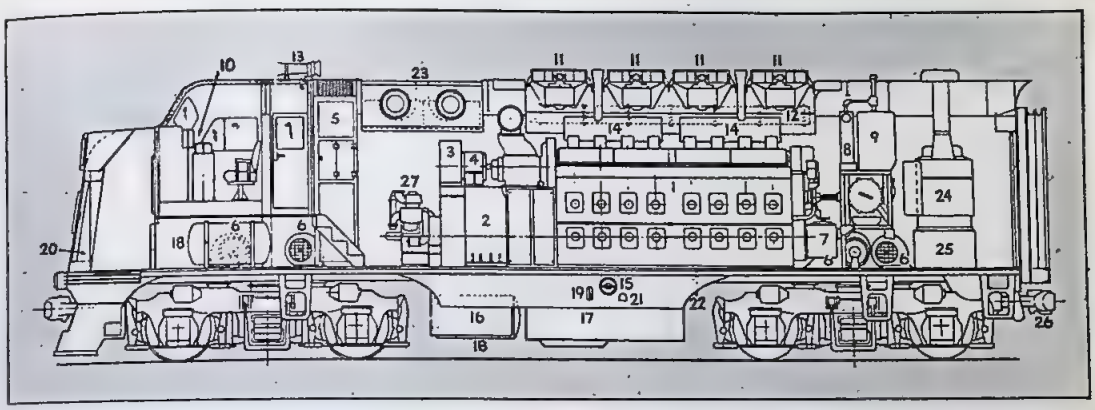
Electro-Motive's test and demonstration locomotive ↑ has already rolled up more than 125,000 miles since it began a tour of 26 railroads in August, 1945. Basically a freight loco with four-wheel trucks so it can negotiate almost any curve a freight car will take (up to 23 degrees), it can quickly be regeared to become a high-speed passenger locomotive. Stability at high speed is maintained due to the outside swing hanger design and the balance between elliptical and helical springs. The new generator ↓ produces both direct current for the traction motors and alternating current for auxiliaries.



Hedrich-Blessing Studio

Hiding its light under a basket for 14 months while making extensive road tests and demonstrations, Electro-Motive Corporation announced late in October that production has started on its new Model F-3. The company insists that this model is not "radically new," yet it offers a range of gear ratios which allows the basic design to be used as a heavy-duty freight engine, a high-speed passenger engine, or a combination medium-duty medium-speed job. Thus a railroad which is faced with a sudden peak in one form of traffic can meet that peak simply by changing over a quantity of locomotives from one service to the other. When the peak has passed, the locomotives can be returned to their original duties.

EMC itself looks upon the F-3 as an improved F-2. Horsepower rating has been increased from 1350 per unit in the F-2 to 1500 per unit in the F-3. The prime mover is the same 16-cylinder two-cycle Diesel which is used in the F-2. The more than 1100 F-2 units in service since 1940 have rolled up a total of more than 160 billion ton miles.



The "A" unit of the F-3 is only 50 feet 8 inches long; the "B" (not shown) is an even 50 feet. Numbered parts are as follows: 1, 16-cylinder Diesel engine; 2, main generator and alternator; 3, generator blower; 4, auxiliary generator; 5, control cabinet; 6, traction motor blower; 7, lube oil filter; 8, lube oil cooler; 9, engine water tank; 10, engine control and instruments; 11, fan and motor; 12, radiator; 13, horn; 14, exhaust manifold; 15, fuel filter; 16, batteries; 17, 1200-gallon fuel tank; 18, main air reservoir; 19, fuel tank gauge; 20, door; 21, emergency fuel cutoff; 22, engine water filler; 23, dynamic brake grids and blower; 24, steam generator; 25, steam generator water tank; 26, coupler; 27, air compressor. One of the biggest advantages of Diesel locomotives over steam locomotives is that in the event of failure of any part it is a comparatively simple matter to replace the part and get the locomotive back into service while repairs are being made. Even main generator and engine repairs are handled thus.

The generator of the new model produces both direct current for propulsion and alternating current for the operation of accessories and auxiliaries, a feature which has done away with the use of V belts and extension shafts. This has allowed regrouping and relocation of auxiliary equipment such as engine cooling fans in the most advantageous places, since they no longer need to be hooked up mechanically to the engine. Each auxiliary unit has its own alternating current motor, a brushless type which needs servicing only once in three years.

Seven interchangeable gear ratios ranging from 62:15 to 56:21 give a speed range of 65 miles per hour to 102 miles per hour and a low speed continuous tractive effort range of 21,000 to 32,500 pounds. The change to any of these seven ratios can be made in a railroad's own shops in a day. An eighth ratio of 65:12 is also available, but involves special motors. This combination gives a maximum speed of 50 miles per hour and a low speed continuous tractive effort of 42,500 pounds.

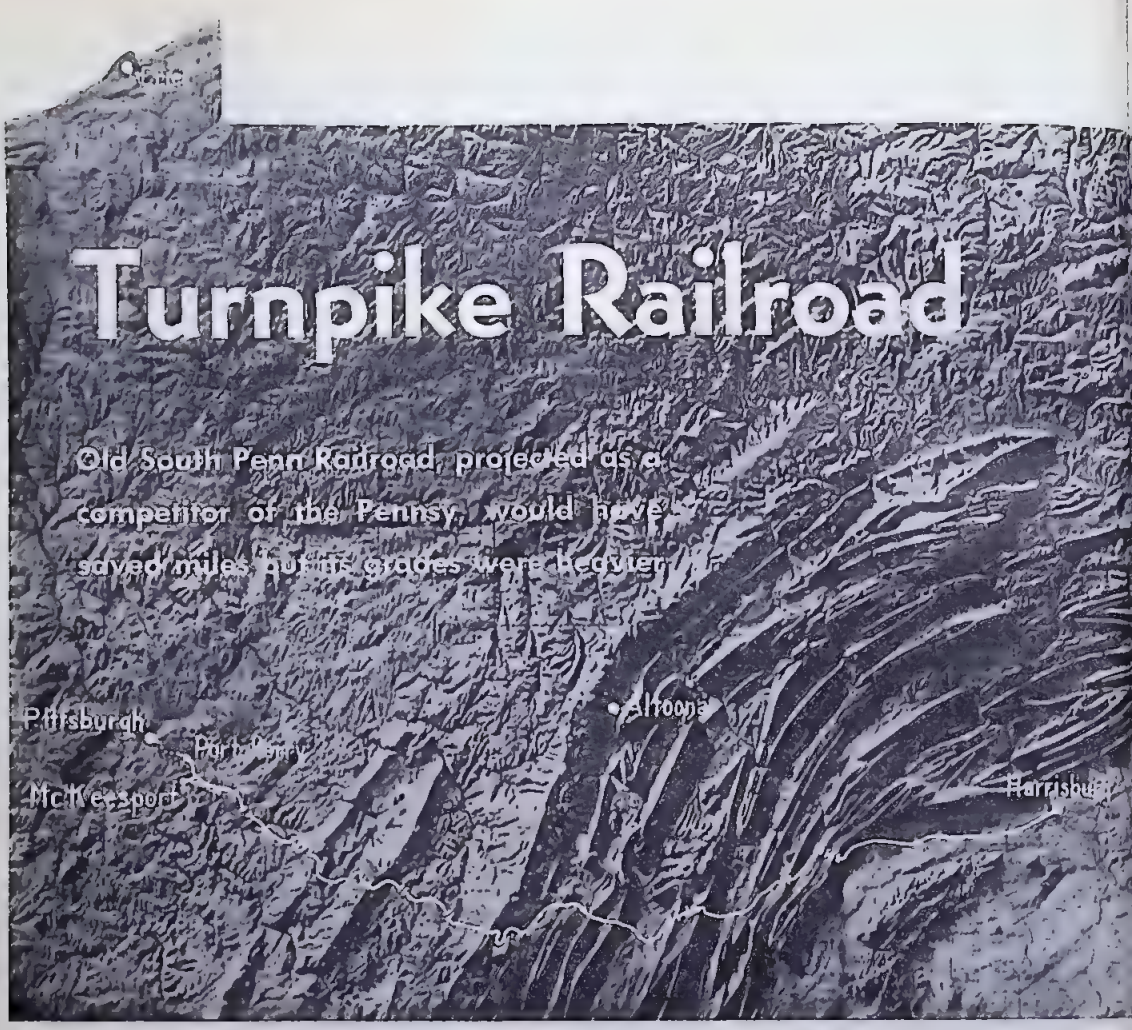
Using the seven interchangeable gear ratios in combination with various numbers of locomotive units — from one unit to four units — a railroad has 28 different locomotives available for any type of service, ranging from a 1500-horsepower job geared for 65 miles an hour and 32,500 pounds tractive effort (or 102 miles an hour and 21,000 pounds tractive effort) to a 6000-horsepower four unit power plant geared for 65 miles an hour and 140,000 pounds tractive effort (or 102 miles an hour and 84,000 pounds tractive effort). The middle gear ratios make an acceptable dual-service locomotive.

Tests and demonstrations of the new model have been going on since August, 1945. The test locomotive now has more than 125,000 miles to its credit, on 26 different railroads and under all operating conditions in both freight and passenger service. As a result of these tests and demonstrations the company began production with advance orders for 746 units, the first lot of which, geared for 100-mile-an-hour passenger service, were delivered to the Santa Fe in October. Thirty United States railroads have placed orders for the F-3.

Production at Electro-Motive's giant plant at La Grange, Ill., is at the rate of 65 to 70 road units and 20 to 23 switchers per month. While switcher production continues at all times, production of the F-3 is alternated with production of the high-speed 2000-horsepower streamliner passenger locomotives which the company will continue to build. The original plant at La Grange, built in 1936, has been expanded continually as the company has added more and more departments. Whereas the original plant fabricated the locomotive bodies and assembled engines, generators, motors and other equipment purchased from other manufacturers, today practically the entire locomotive is built at La Grange, including the Diesel engines, motors and generators.

Turnpike Railroad

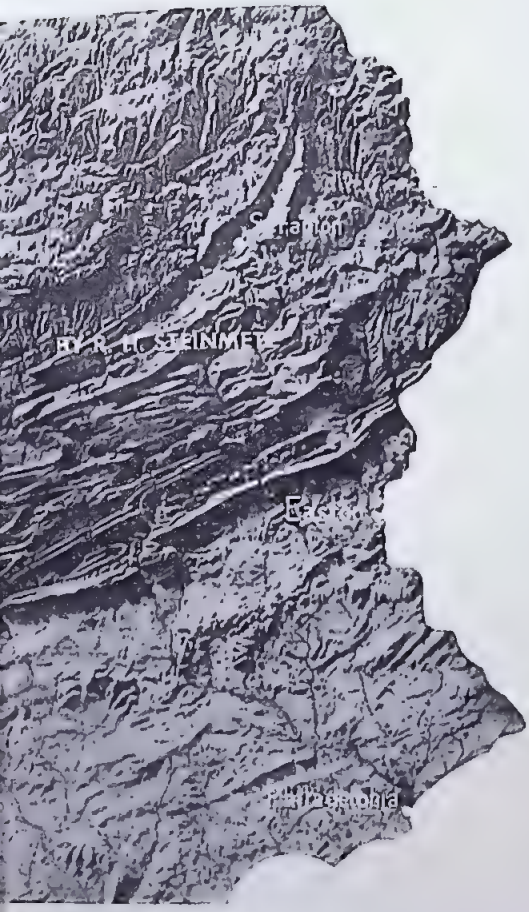
Old South Penn Railroad, projected as a competitor of the Pennsy, would have saved miles but its grades were heavier



Excitement and enthusiasm ran high in the mountain region of south-central Pennsylvania in the spring of 1885. William H. Vanderbilt and Andrew Carnegie were pushing construction of the promising South Pennsylvania Railroad across the Keystone State to force lower rates on steel from Carnegie's mills at Pittsburgh to the seacoast, and to provide a competitive rail route from Harrisburg to the Steel City. Grades were bad, but a saving of at least 30 miles favored the South Penn route. The new line would also furnish a means of retaliation for the Pennsylvania's influence in the building of the highly competitive West Shore Railroad which paralleled Vanderbilt's New York Central along the Hudson River and west to Buffalo.

That their prodigious efforts were doomed to failure was not considered even a remote possibility. No one dreamed, least of all the men who labored on the grades and toiled deep in the long tunnels, that the railroad which they were building would never be finished. The merchants, bankers, and farmers who had invested their savings in the promising scheme were confident of the future of the great South Penn. Indeed, the whole industrial pattern of the state would likely have been changed by the construction of the railroad. But those who labored and invested did not count on powerful forces moving into the picture. They did not know that before the year was out the South Penn was to become an abandoned, half-finished monument to selfish interests.

The abandonment of the project came about after J. Pierpont Morgan returned from England in June of 1885. He endeavored to bring about harmony among the rapidly growing and bitterly competitive railroads in which he had financial stakes. Morgan's future as an investment banker hinged on his ability to keep the railroad monopolies intact. He was convinced that if he could induce Vanderbilt to sell out



the Pennsylvania Railroad, gazed out across the water, his mind fully occupied with the problem at hand. Elbert Gary, an eminent attorney representing Morgan, shuffled a sheaf of papers and gazed from one to another of the group. Only old "J. P." himself, reclining his 200-pound bulk in a deck chair and chewing on a long black cigar, was at ease and very apparently master of the situation.

Attorney Gary cleared his throat and looked directly at Morgan.

"I don't think you can legally do that," he said.

"Well," answered the great banker, "I don't know as I want a lawyer to tell me what I cannot do. I hire him to tell me how to do what I want to do."

Depew of the Central and Roberts of the Pennsy did most of the talking. Morgan broke in sharply at intervals. Roberts proved to be the hardest nut to crack. He didn't want to buy "a hole in the ground." Then he added:

"If the Pennsylvania Railroad bought the South Penn it would only be helping to pull the New York Central out of a scrape."

Morgan interjected that the Central would lay out a considerable sum itself for the acquisition of the West Shore Railroad. Roberts then agreed and Morgan turned to Vanderbilt.

A bitter quarrel ensued, but in the end "J. P." had his way and Vanderbilt's multimillion-dollar creation, the famous South Penn Railroad, became an abandoned and unfinished dream. More his interests in the South Penn he would have accomplished the first step in strengthening his own position in the railroad financial field. Thus he persuaded the Pennsylvania Railroad to buy out Vanderbilt in the South Pennsylvania and to give up the competitive West Shore Railroad's line in New York State.

The deal was made on the "Corsair," Morgan's palatial yacht, on a warm summer day in July, 1885. The sparkling swells of Long Island Sound cast bright reflections on the canopy over the afterdeck. Here a small group of men were lounging, apparently at ease, in comfortable deck chairs. However, an air of tenseness pervaded the assembly.

William H. Vanderbilt fidgeted nervously with his leather wallet. Chauncey Depew, who later succeeded Vanderbilt to the presidency of the New York Central, conversed earnestly with his secretary, while George B. Roberts, president of

Piers of the never-completed South Penn bridge across the Susquehanna River at Harrisburg are an ever-present reminder of a great dream that never materialized. Concrete arch bridge at right is that of the Reading Company. It is occupied by a Western Maryland freight. Wires in foreground are those of PRR's electrified trackage on west bank.

R. H. Steinmetz.

QUEMAHONING **NEGRO** **ALLEGHENY**

than half a century was to pass before the project was completed, not as a rail route, but as an all-weather highway extending from Harrisburg to Pittsburgh.

Petitions to Lewis C. Cassidy, attorney general, painted a picture of dark days after Vanderbilt and Morgan reached their agreement and work was stopped. The town of Everett, where a building and loan association and a bank failed and steel furnaces shut down, claimed it had been "deceived, misled and cheated.". It begged the attorney general to right what it described as "this wrong."

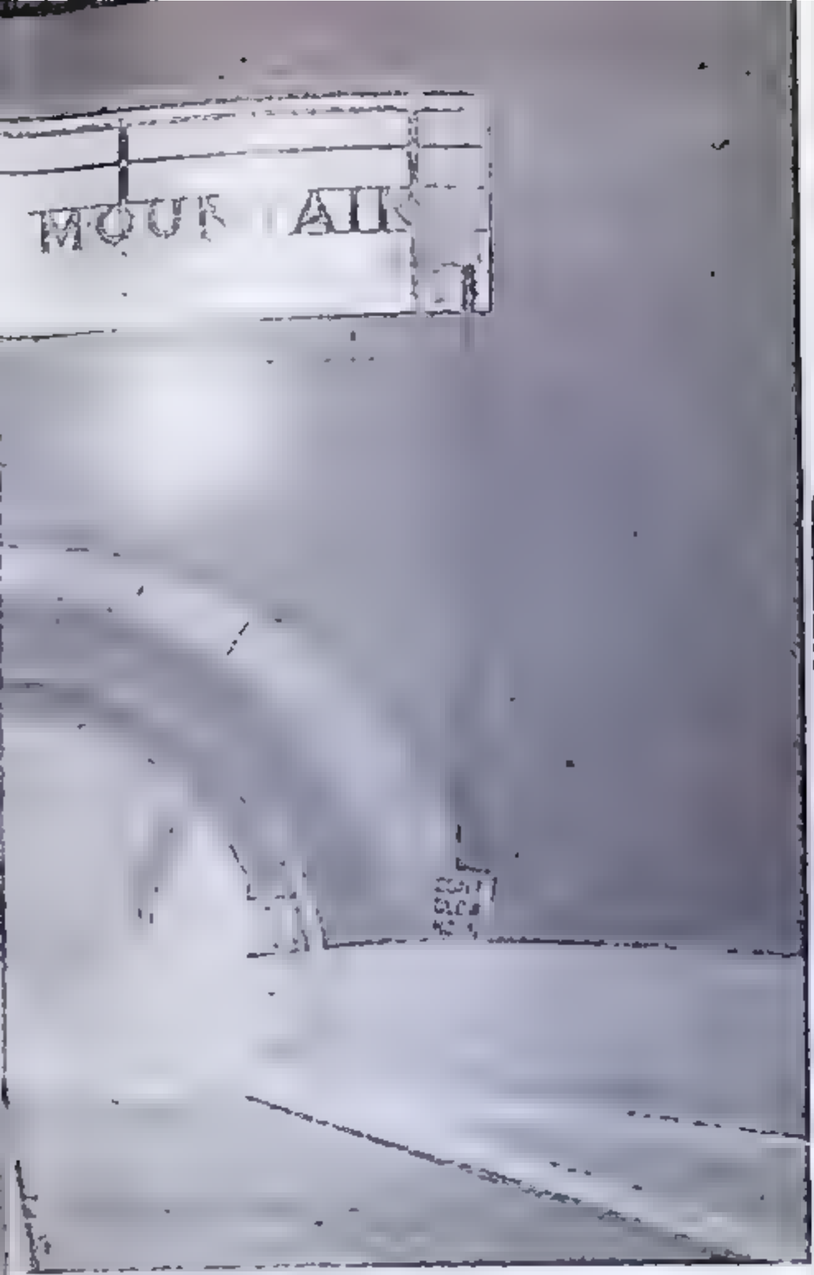
Cassidy started suit and the PRR was enjoined from absorbing the South Penn on the ground that it was a competitor. The Pennsylvania constitution prohibited any railway in the commonwealth from purchasing a competing line. Cassidy, in closing his argument before the court, stated that the deal was "surrounded by mystery and trickery."

"There is not an individual within sound of my voice," he added, "who does not know that the South Penn was intended as a line to deliver the people of the southern and western parts of this state from the monopoly of the Pennsylvania Railroad."

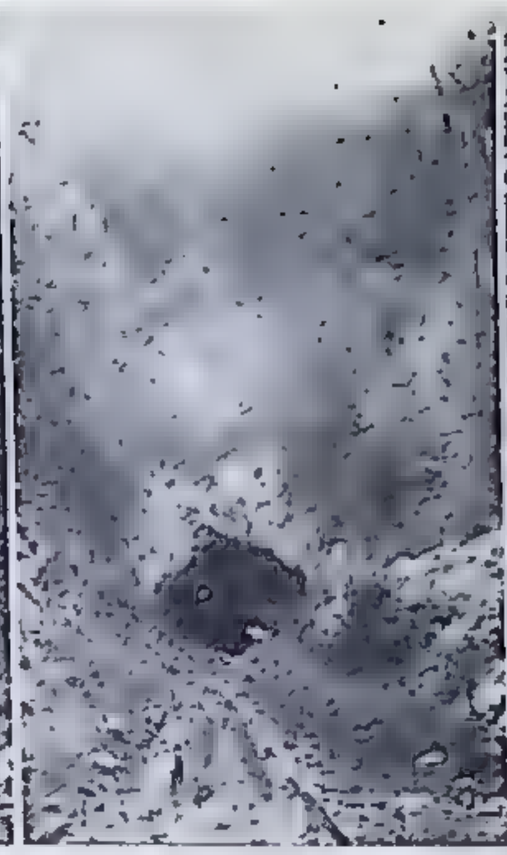
But work on the road remained at a standstill although various attempts were made to get construction under way again. The *Railway Gazette* of April 25, 1890, reported: "The property was recently bought at a foreclosure sale by G. F. Baer of the Philadelphia & Reading Coal & Iron Company, and he has been elected president of the reorganized company. But the reorganization does not foreshadow an immediate construction of the road. It clears the property of all litigation and outside complications and leaves it in the control of the Vanderbilt interest. Nothing, however, has been decided upon as to whether the road shall be built, and while the directors decline to make official statements, it is understood that no changes will be made in the status of the property, which now exists simply as an asset to represent the money sunk in the enterprise."

After the courts had had their say and hope had waned that associates of Vanderbilt, who

↑ Six of the South Penn's 10 tunnels are shown as they looked when highway engineers became interested in the old railroad route. ← Sideling Hill Tunnel after 50 years of nonuse. Notice marks left by water before draining.



TUSCARORA



SIDELING

KITTATINNY

had died in the latter part of 1885, would complete the line, the people of Bedford County called upon the Baltimore & Ohio Railroad to build the line. The B&O never built, but maps and records of the Pennsylvania Public Utility Commission showed that railroad as owner of what was left of the old South Penn at the time the highway project was proposed. Attempts were made in 1908 and 1914 to revive the railroad project, but it never developed.

Like all big construction projects, the South Penn had its share of adventures and tragedy. Crashing timbers, falling rocks, slides and even murders took their toll of life.

A notation, "Dangerous roof," features fading plans of the Allegheny Tunnel. In this bore several laborers lost their lives when rocks loosened by blasting fell without warning. "Last Friday night," relates the Plainfield *Times* of July 23, 1885, "the hands in the Blue Mountain Tunnel were overcome with foul air, smoke and gas, partly the effect of a very heavy blast that was just discharged. The men were quickly taken out on a dirt car, but one negro was dead and it is thought that another will not recover. The negro who died had a belt on him with $130 but someone robbed him of his money, and the belt was found near by the tunnel. Six were injured in all, four black men and two whites."

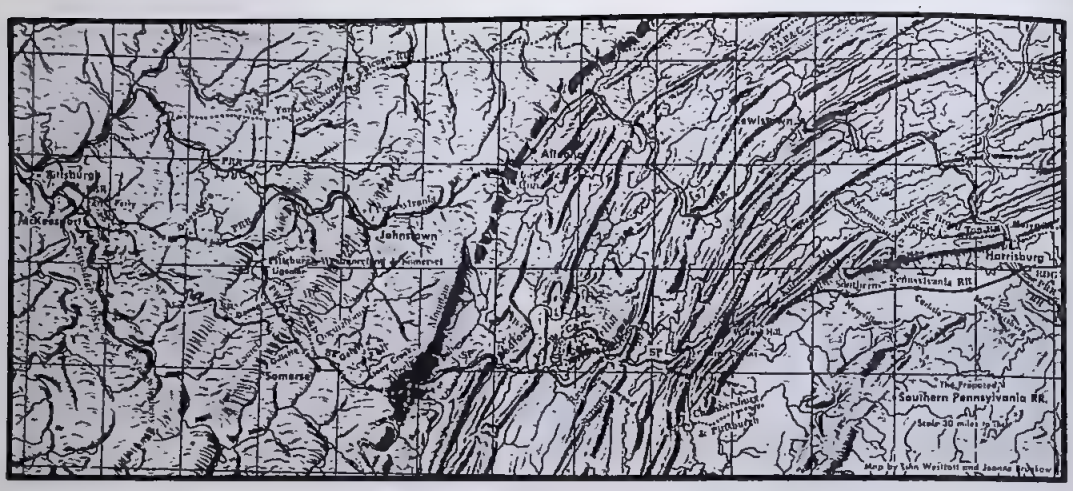
The July 30 issue of the same paper stated: "The Blue Mountain Tunnel caught fire last Tuesday night, and burned nearly all day Wednesday. A fire engine came out, but could do no good. By the use of dynamite near the entrance, enough earth was secured to block the mouth of the tunnel and keep out air."

Bodies of negro laborers killed by violence were tossed into the fills without ceremony. Robbery was said to have been the main reason for their being "persuaded" that the "climate" was unhealthy, and the best time to leave was at night. Terrified, they stumbled up the steep sides of the mountain in the moonlight. Rifles cracked at the summit. Fills the next morning showed no outward sign of disturbance, but it is claimed that they hid the bodies.

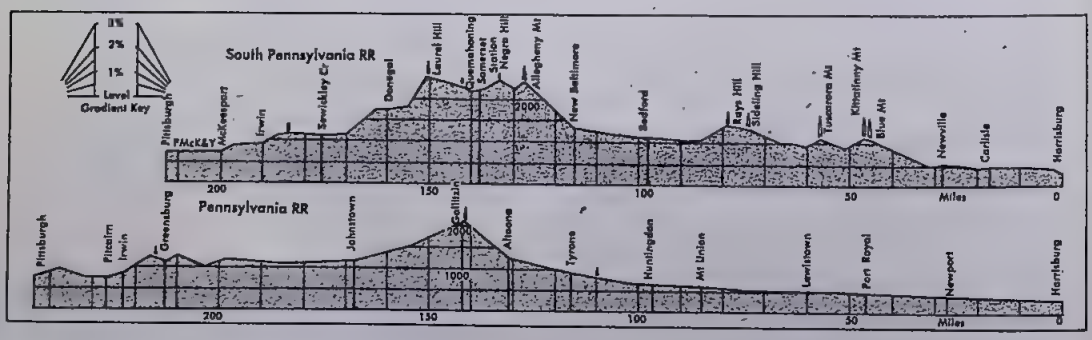
The men of tunnel days have long since passed

↑ Center photo shows entrance to Tuscarora Mountain Tunnel as it appears today. → Andrew Carnegie (foreground, left) inspects the work at the mouth of Ray's Hill Tunnel. With him is George Lauder, chief construction engineer.

All photos courtesy Pennsylvania Department of Highways.



↑ Routes of the proposed South Pennsylvania Railroad and of the Pennsylvania Railroad, with which the South Penn was planned to compete, average about 30 miles apart. Traffic arrangements were already made for through trains between New York and Chicago via the South Penn and other Vanderbilt lines. Although shorter than the existing PRR, the South Penn had more and tougher grades ↓. The original survey was made at a maximum grade of one per cent except on the Allegheny summit, where 68 feet per mile was to be used (approximately 1.3 per cent). This survey apparently was revised later in order to save the expense of heavy grading. The west approach to Laurel Hill was very steep. The Railway Gazette of March 21, 1884, reported: "The descent of the eastern slope of the Alleghenies is made at a grade of 95 feet per mile, agreeing with that used by the Pennsylvania Railroad in covering a like distance. At the foot of the mountain the village of New Baltimore is reached. What is here now only a tavern, a store, and a few scattering houses, may some day soon be a rival of Altoona in size and industries." Dotted lines show other projected railroad routes.



on, but stories have been handed down to their sons and grandsons. Wild are the tales of the old days, when laborers, newly come to this country, fought deep in the bores, splitting skulls with picks or flattening them with spades. Wild drinking parties ended in brawls costing life and limb, for the men who worked for Vanderbilt were a tough lot. But work on the nine tunnels continued unaffected by such events.

Kittatinny Mountain, 20 miles north of Chambersburg, was the location of the first of the bores, 4350 feet long. A second bore was located less than 1000 feet beyond the end of the first, across narrow Gunner's Valley. This one was 4653 feet in length. Construction was pushed day and night by crews working from each side of the mountain. When work was stopped they were so near each other they could hear the pounding of drills and the scrape of picks.

Fifty-six miles west of Harrisburg was the beginning of the third tunnel, through Tuscarora Mountain. This was to have been 5400 feet long; Sideling Hill, 74 miles west, 6700 feet; Ray's Hill, 79 miles west, 3620 feet; Allegheny Mountain, 127 miles west, 5900 feet; and Laurel Hill, 155 miles west, 5450 feet.

Three more tunnels—Negro Mountain, Quemahoning and Sewickley, all farther west—were not included in the original contract of

1883, due to a possibility of change in route. However, they were begun at a later date. Of all the tunnels the Quemahoning was the only one completed and the only one that ever served its original purpose. For a period of 15 years or more narrow gauge trains of the long-gone Pittsburgh, Westmoreland & Somerset Railroad rolled through the bore.

Tunnel linings were of stone, brick and timber, all three of which were prepared from materials right at hand. Huge stones for the entrances were cut from quarries near by; brick was molded from clay deposits found along the route and baked in ovens near the tunnel mouth; solid 12 x 12 timbers were hewn from great forest giants found on the mountain sides.

Negro Mountain Tunnel, near Brotherton, was begun around Christmastime in 1884. Being one of the shorter bores, all but 394 of the 1100 foot distance had been completed at the drop of pick and shovel in August of the following year. The roadbed between this tunnel and the Allegheny bore, 10 miles east, was cut and filled to grade, but no start had been made on the bridging of Stony Creek.

Sewickley Tunnel near the western end was barely begun when the Vanderbilt-Morgan showdown came; little evidence of it remains.

Fading topographical maps of the old South Penn, now in possession of the Pennsylvania Turnpike Commission, show a ruling grade over the whole line of 1 per cent. The grade on the approach to the Allegheny Tunnel was 1.8 per cent, with several other locations such as the west slope of Laurel Mountain showing 2 per cent and slightly over. Maximum curvature ranged anywhere from 1 to 8 degrees, with the sharpest curve shown on the approach to the west portal of Laurel Mountain Tunnel.

Even at the time the South Penn was under construction there were several locations in Bedford and Westmoreland counties where definite lines for the right of way had not been determined. Therefore it is impossible to give the exact mileage of the project. The nearest estimate is about 200 miles from Harrisburg to the proposed western terminal at Port Perry, near McKeesport. The maps indicate connections at this point with the Baltimore & Ohio and the Pittsburgh & West Virginia Railway. Evidently it was proposed to obtain trackage rights into the Steel City itself.

At the height of the construction activity 2300 men were employed. Some even came from abroad for this job and many brought their wives. Mushroom towns sprang up. Cabins of logs, scrap-board huts, and even hillside caves served as homes for the hardy laborers who collected $1.25 for their 10-hour daily stint. In all, 30 commissaries were required.

Pennsylvania Department of Highways.

Although its value as a railroad project was in excess of $10 million, the railroad interests which owned the right of way now occupied by the Pennsylvania Turnpike received only $2 million from the sale of the property to the state. For this sum the highway department received title to the right of way and the benefit of preliminary surveys, considerable excavation and the tunnels ↑, none of which were usable for highway purposes until they had been cleared, enlarged and lined with concrete. Compare with Blue Mountain Tunnel today ↓.

R. H. Steinmetz.

One old-timer paints a vivid word picture of life in those settlements as he viewed it from the seat of a big beer wagon he drove while dispensing liquid refreshment among the foreigners.

"I'd drive up with a big load," he said, "and those fat foreign women would stick their heads out of cave or hut, or whatever they happened to call home. They'd hold up one finger. That meant they wanted one case. Sometimes they'd grin and hold up two fingers. That always tickled

me. Then I'd see their men come out of the tunnels dirty, hot, and tired. They'd flop down in front of where they lived and open a bottle of beer. Then their women would come out, bearing a hot frying pan in which there would be a fat pretzel."

Near Burnt Cabins, in the deer and laurel country, lies Sheepskin Hollow. The South Penn right of way traversed this hollow and cut right through a farmer's barn. It is related that the owner of the barn did not object to the dump carts rumbling in one set of doors and out the other on their way to cut and fill.

"But," he complained, "I'm sure not going to stay here, opening and closing these doors for your steam trains to get through."

The storied farmer need not have been perturbed, for the trains never came and even the present-day highway by-passes the farm by a considerable distance.

And so the great South Penn died, victim of selfish interests and circumstance. Its half-forgotten, weather-beaten right of way, its deserted, bat-infested and water-filled tunnels lay undisturbed for half a century. Meanwhile the development of the automobile continued apace with its attendant highway improvement program. A combination of these factors brought about a revival of interest in the old project.

A severe financial depression, coupled with government make-work programs, turned the attention of highway boosters to the construction of a "weather-proof" high-speed route between Harrisburg and Pittsburgh. It was only natural that the South Penn route was selected.

Construction of the present highway over the approximate route of the South Penn included many changes in line and grade. At some points the toll road is several miles from the old rail route and steeper grades were used to cut overall distance. Even some of the old tunnels were not used for various reasons. An entirely new bore 85 feet south of the old one carries the highway through Allegheny Mountain.

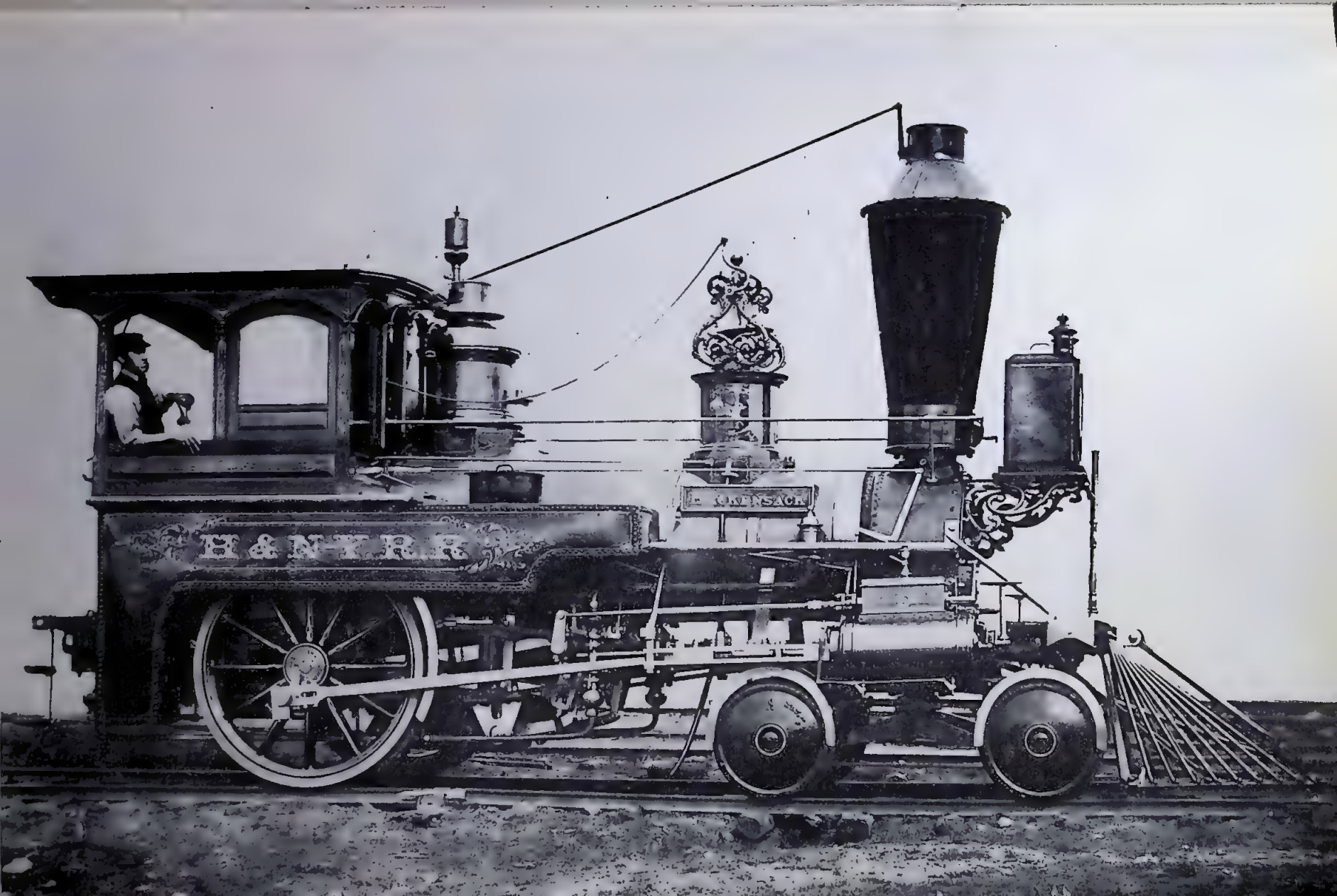
Although most of it was owned by the Baltimore & Ohio Railroad, no plans were ever placed on the agenda by that management. Consequently, when the highway was proposed, the B&O readily agreed to sell its holdings to the Pennsylvania Turnpike Commission, created by the legislature of the commonwealth to construct a toll highway over much of the old South Penn route. About the same time an engineer by the name of Phillips, in Pittsburgh, proposed the construction of a high-speed all-electric railroad over the same route. He claimed to have backing for the construction of the railroad, but a highway-conscious public utility commission and the I. C. C. turned down the proposal.

Thus it happened that the highway was built and the once-promising South Penn project was permanently interred with a multitude of other unfinished dreams.

Both photos, Pennsylvania Department of Highways.

The South Pennsylvania took over the papers of the Pittsburgh & Atlantic, an earlier project and one of many that was planned to go over the approximate route. Construction trains once ran over this deserted fill in Somerset County ↑.

Today, the old railroad route has become a race track for automobiles and trucks ↑. This southern route was first surveyed for a railroad in 1837 and more surveys were made in 1844. It was not until 1883 that building began in earnest.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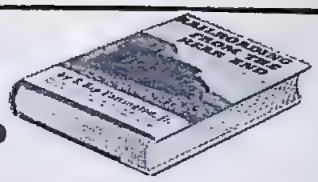
Photograph on reverse side



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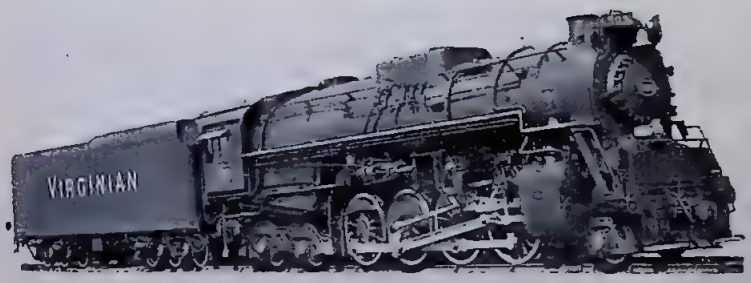

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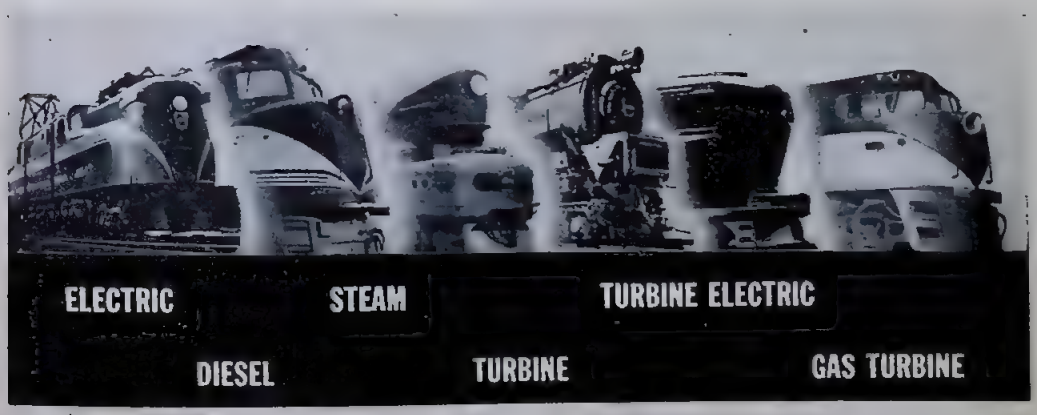

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Timken Roller Bearings make all types of modern motive power perform more efficiently; increase their availability; reduce operating and maintenance costs.

Sixteen years ago the Timken locomotive demonstrated conclusively the value of roller bearings for motive power; since that time a constant swing to Timken Bearings for all types of locomotives has been in progress.

Today there is hardly a new locomotive of any type built that does not have roller bearings. The railroads know it pays—and so do the locomotive builders. The Timken Roller Bearing Company, Canton 6, Ohio.

TIMKEN

TRADE MARK REG. U. S. PAT OFF

RAILWAY ROLLER BEARINGS

RUNNING EXTRA

Now you take Bob Burns. To the poetically inclined the name brings visions of a Scottish poet. To radio listeners it conjures pictures of an Arkansas hill-billy with myriad nieces, nephews, aunts and drinkin' uncles. But to employees of Kalmbach Publishing Co. it means the affable, curly-headed young man pictured above — Bob Burns, in person.

How many aunts and uncles this Bob Burns has, we don't know and don't care. He may have written a sonnet or two, but we've never read them. He's our printin' Burns. He's the man who assembles home-set ads for TRAINS and its companion magazine, THE MODEL RAILROADER. As such he plays an important part in the production of the two magazines.

Mechanization has simplified the ad man's job in recent years, but still it's quite a task and one that requires some degree of artistic talent as well as the ability to "justify" each column of linotype and each line of handset display type. Borders must be cut and mitered accurately and just the right amount of "squeeze" allowed for so that when the form is locked up it will neither bulge nor "belly." Type areas, illustrations and white space must be balanced so as to be pleasing to the eye. And all this must be done while working with type that reads backwards and with "white space" that is the same color as the type, distinguishable from the type only by the fact that it does not stand as high in the form. Most printers, incidentally, must wear glasses.

Bob has been with us somewhat less than a year, forsaking the army and action in Germany to take up the stick and pica pole last April. He had had previous experience in a commercial composing room and so made the conversion to civilian life with comparative ease.

Working with Bob in the composing room are two other compositors, a linotype operator and an apprentice, just a small part of the more than 50 employees who pool their efforts to get out the magazines each month.

Railroad

Beebe Answers Mr. Gay

I am grieved by the distress of C. E. Gay, vice-president of the Savannah & Atlanta, over my affection for the Sylvania Central [October TRAINS]. The Sylvania is, nevertheless, a road of inimitable charm, and a genuine, hand-painted oil painting of it by Howard Fogg will, I hope, grace the jacket of my impending "Mixed Train Daily, a Book of Short Line Railroads," which E. P. Dutton plans to publish in the fall of '47. Nor need Mr. Gay despair overmuch. There is a very nice picture indeed of his own railroad in the book, but he will have to come through with 12½ fish for a copy if he really cares. The day we shot the S&A a lone passenger was in the coach and we inquired of him from the conductor. "Oh, he's a twice-a-week regular from Alexander to Waynesboro," said the brains. "He knows a black man there who gives him a shave with a safety razor for a dime."

Lucius Beebe, New York *Herald Tribune*, New York City.

Railroads Are the Losers

I think the railroads should spend more time and money in training their ticket clerks and others who meet the public. I frequently have occasion to assist a friend or acquaintance in preparing an itinerary for a trip by rail. Almost always, before they ask me for help, they have contacted the rail agent and have not been completely satisfied. . . . I think the railroads are the losers when they fail to help their customers, whether the ticket is routed over that particular line or a connection.

J. H. McDonald, 540 W. Carpenter St., Springfield, Ill.

Courtesy on the B&O

I'd like to put in a good word for the employees of the Baltimore & Ohio. Their courtesy and friendliness is a pleasure. They are proud of their work and the B&O and they literally lean over backwards to answer queries and make one feel at home. I have talked with crossing and switch tenders, towermen, communications men, dispatchers and traveling engineers and the spirit was the same with all. They appeared pleased that I, a layman, was interested in their railroad and they proved to me that the B&O claim of courtesy is not just a "front" for the benefit of the traveling public.

Jim Bennett, 19 Highland Rd., Stamford, Conn.

Boola Some More

In your September issue (page 62) you showed a timetable of the Washington, Idaho & Montana Railway under the heading "Boola, Boola!" Two other stations on this line are "Wellesley," between Kennedy Ford and Potlatch, and "Purdue," a freight-only station east of Bovill.

David A. Hopper, 420 Clark St., South Orange, N. J.

Wreck of "Ole 97"

In the near future visitors to Danville, Va., may be able to conveniently visit the site of the wreck of "Ole 97." A new highway link to shorten U. S. 50 will pass very near the scene of the famous wreck.

Robert M. Harvey, Rte. 2, Box 113, Danville, Pa.

115 Locos, 116 Cars, 118 Miles

I note the Richmond, Fredericksburg & Potomac owns 115 locomotives and 118 miles of track [November TRAINS]. It also owns 116 passenger cars. This is rather unusual — an average of roughly one locomotive per car per mile of track.

T. H. Bateman, Commercial Trust Bldg., Philadelphia 2, Pa.

Mail

Coronet's New Cover

Here's *Coronet's* new cover, and of all people we thought you'd be interested because it pictures the Chicago, Milwaukee, St. Paul & Pacific railroad station at near-by Glenview, Ill. The artist, Stanley Eckman, lives at Glenview. For purposes of composition, he changed the station's wall seats to a well-worn bench. And on that bench is a surprise for two of his neighbors; if they look closely, they will find their initials carved there.

H. Beverly Heen, *Coronet*, 919 N. Michigan Ave., Chicago 11, Ill.

We Blush

We have been unable to substantiate your statement on page 64 of the October issue that locomotives can handle 80-car trains, but not 60 cars, on the B&O's Fairport branch. The spacing of up and down grades on the Fairport branch is at distances so great that the whole of an 80-car train is either on a down grade, on the level, or on an upgrade at one time.

Robert M. Van Sant, Director of Public Relations, B&O, Baltimore 1, Md.

What kind of twaddle are you handing us, that No. 204, the *Uncle Dick*, was the only Santa Fe engine to have both a number and a name? Many AT&SF engines were both numbered and named. I refer you to the Railway & Locomotive Historical Society's bulletin, "Locomotives of the Santa Fe."

Paul L. Henchey, 1190 Haight St., San Francisco, Calif.

"On the Buda S Curve" in the October issue is most interesting. However, the small *Zephyr* identified on page 46 as the *Pioneer Zephyr* is actually 9902, one of the original *Twin Zephyrs* between Chicago and St. Paul-Minneapolis, now in service between Chicago and Ottumwa and designated as X-1 and X-40. Unofficially it is known as the *Baby Zephyr* to distinguish it from the "big one," the *Denver Zephyr*. The *Pioneer Zephyr* is in service between Lincoln and McCook, Neb.

Donald Ashton, Executive Assistant, Burlington Lines, Chicago 6, Ill.

If the Central Sanalona's No. 9 was loaded on a steamship at Dallas, Tex., as you state in the caption on page 61, October issue, she is still in Dallas, for the only water there is some handed down from Fort Worth — barely a trickle.

Earl R. Gilbert, 428 Woodland, Houston, Tex.

The photo captioned "Denver and Interurban" on page 21 of the October issue is not a photo of any of the cars owned and operated by the now nonexistent D&I. . . .

Mark D. Swerdfeger, 14406 Tiara St., Van Nuys, Calif.

. . . You are confusing the Denver & Interurban with the Denver & Intermountain. This car may be seen any day here in Denver leaving for Golden via the standard gauge or south line.

Edward Mahoney, 1068 Kearney St., Denver 7, Colo.

Since the year 1926 Texas has continually produced more petroleum and its products at an ever-increasing rate than the state of Oklahoma, and that's 20 years ago. [Referring to "Railroads of Oklahoma," October TRAINS.]

G. O. Diller, 4076 Purdue St., Dallas 5, Tex.

SECOND SECTION

The photographs TRAINS editors want most for publication are those which show the characteristics of and differences in railroads: the kind of terrain they traverse, the structures along the right of way, the types of signals used — in short, any material which tends to show the personality of the railroad. Trains should be included when possible. Three-quarter views are easiest and for that very reason pictures taken from other angles are at a premium. The back end of a train is easy, too, but less common. The fact that it's a different angle from most of those in our files will often make it more acceptable than the stereotyped three-quarter view. Broadside shots of trains and railroad scenes taken from high vantage points are hard to get, but they're worth the effort.

How about taking a head-on shot from some safe position such as a highway overpass? But don't attempt it from ground level. Camera "finders" have a way of making a close object look far away — until it's too late to jump. We'd rather have another three-quarter view from a living photographer than a superduper head-on shot from the widow of another.

But back to differences in railroads. Let's imagine two pictures side by side. Both show trains, but that is not all. One shows the tracks in a heavily built-up industrial region, conveying the idea that this railroad, perhaps the P&LE, serves heavy industries. The other includes a wide expanse of prairie, exemplifying the great distances that a western road such as the Union Pacific has to traverse.

Crop the pictures too close to the trains, and what have you got? Two trains that might be found on any railroad.

See what we mean?

* * *

Photographers are invited to send for our Photo Bulletin No. 3, which tells our needs and the rates of payment. Address your request to Helen Madden, Trains, 1027 N. 7th St., Milwaukee 3, Wis.

* * *

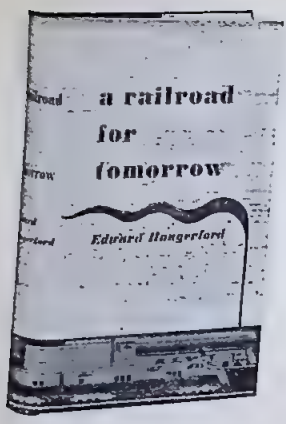
Back copies of TRAINS are available as follows at 25 cents each: August, September and October, 1941; May and July, 1942; March, April, May, September, October, November and December, 1943; March, April, May, June, July, August, September, October, November and December, 1944; April, May, June, October and November, 1945; and all issues of 1946.

* * *

Place your order now for bound volume No. 6, November, 1945-October, 1946, which will soon be available at $5 per copy. Bound volume No. 5, November, 1944-October, 1945, is still available at $5.

KALMBACH PUBLISHING CO.

1027 N. 7th St., Milwaukee 3, Wis.



Edward Hungerford's
RAILROAD for TOMORROW

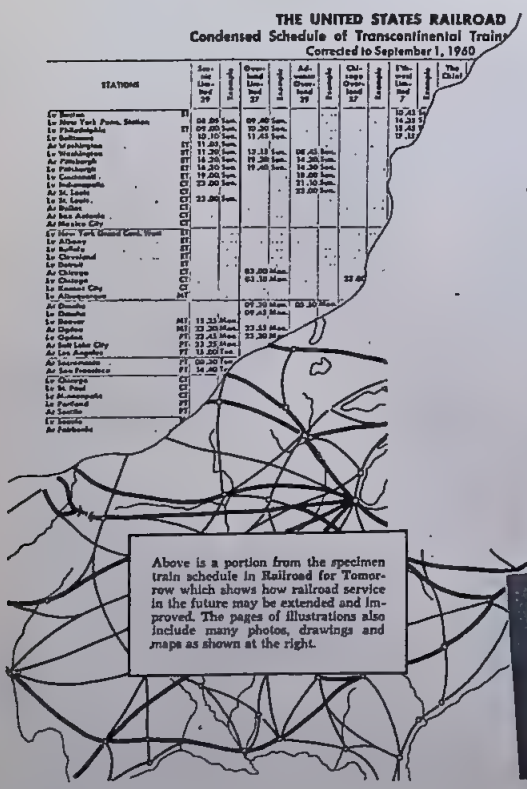
With Official Condensed Timetable of

THE UNITED STATES RAILROAD

Corrected to September, 1960

How would you do it? How would you co-ordinate America's railroads to handle the traffic of the future? Are railroads wasting time, money, and service under our purely competitive system? Could one man run a railroad empire without denying all freedom to the individual railroads?

No one thought it possible under the American system until William Wiggins came along. Wiggins is Ed Hungerford's hero in his great book, a blueprint written as history-fiction. Here you will find the U. S. railroads nationalized yet privately owned, economies realized without loss of service. See the new stations of 1960 in New York and Chicago and the timetable of transcontinental trains. Maps show improved routing in large cities. Among suggestions for future passenger cars, Mr. Hungerford publishes his own plans for an articulated two-car coach unit. For wealth of material and illustrations, few books can surpass "Railroad for Tomorrow."


THE UNITED STATES RAILROAD
Condensed Schedule of Transcontinental Trains
Corrected to September 1, 1960

STATIONS		Sunset Limited 29	Sunset Limited 27	Overland Limited 29	Overland Limited 27	Advance Overland 29	Chicago Overland 27	Chicago Overland 27	Fifth-wheel Limited 7	The Chief
Lv Boston	ET								10.45	
Lv New York Penn. Station		08.00 Sun.	09.40 Sun.						14.35	
Lv Philadelphia	ET	09.00 Sun.	10.30 Sun.						15.45	
Lv Baltimore		10.10 Sun.	11.45 Sun.						17.15	
Ar Washington	ET	11.00 Sun.								
Lv Washington	ET	11.20 Sun.	12.15 Sun.	08.45 Sun.						
Ar Pittsburgh	ET	16.20 Sun.	19.20 Sun.	14.30 Sun.						
Lv Pittsburgh	ET	16.30 Sun.	19.40 Sun.	14.30 Sun.						
Lv Cincinnati	ET	19.00 Sun.		18.00 Sun.						
Lv Indianapolis	CT	23.00 Sun.		21.10 Sun.						
Ar St. Louis	CT			23.00 Sun.						
Lv St. Louis	CT	23.00 Sun.								
Ar Dallas	CT									
Ar San Antonio	CT									
Ar Mexico City	CT									
Lv New York Grand Cent. Tract	ET									
Lv Albany	ET									
Lv Buffalo	ET									
Lv Cleveland	ET									
Lv Detroit	ET									
Ar Chicago	CT			03.00 Mon.						
Lv Chicago	CT			03.10 Mon.				22.00		
Lv Kansas City	CT									
Lv Albuquerque	MT									
Ar Omaha				09.30 Mon.		00.30 Mon.				
Lv Omaha				09.45 Mon.						
Lv Denver	MT	11.35 Mon.								
Ar Ogden	MT	22.30 Mon.		22.55 Mon.						
Lv Ogden	PT	23.45 Mon.		23.30 Mon.						
Ar Salt Lake City	PT	23.25 Mon.								
Ar Los Angeles	PT	15.00 Tue.								
Ar Sacramento	PT	00.30 Tue.								
Ar San Francisco	PT	14.40 Tue.								
Lv Chicago	CT									
Lv St. Paul	CT									
Lv Minneapolis	CT									
Lv Portland	PT									
Ar Seattle	PT									
Lv Seattle										
Ar Fairbanks										

Above is a portion from the specimen train schedule in Railroad for Tomorrow which shows how railroad service in the future may be extended and improved. The pages of illustrations also include many photos, drawings and maps as shown at the right.

As readers of "Railroad for Tomorrow" will discover, Mr. Hungerford writes with authority tempered with an easy sense of humor. To his help in preparing this unusual book have come former President Hoover, President Ralph Budd of the Burlington, Dr. L. K. Sillkox of the New York Air Brake Co., and Colonel Wm. J. Wilgus, consulting engineer.

Railroad officials, railfans, critics, and a forward-looking public are reading "Railroad for Tomorrow" with sincere enthusiasm. Whether or not you agree with the author's prophecies, the book will fascinate you. 380 pages with 32 pages of illustrations and colored maps.

AT YOUR BOOK STORE OR HOBBY SHOP

$5

or Sent Postpaid from KALMBACH PUBLISHING CO. Dept. 22, 1027 N. 7th St. Milwaukee 3, Wis.

C & E I CHICAGO-*liners*

Powered by the latest type, high-speed passenger Diesel locomotives. These 2,000 h.p. Diesel units were specially designed and built for the CHICAGO-liners by the Electro-Motive Div., General Motors, La Grange, Illinois.

Two of America's Newest and Finest Postwar Streamliners for Daytime Travel

Resplendent in the use of modern color dynamics—the interiors of these new trains are finished in the finest taste . . . charming color combinations conducive to rest and relaxation. Descriptive photo murals and sparkling mirrors further enhance the beauty of these spacious interiors.

Both these new trains introduce a new trend in color and design motif taken from the scenic countryside served by the C & E I.

THE MEADOWLARK

Now in regular daily service between Chicago and Southern Illinois.

Featuring:

- Invitingly spacious coaches, deep-cushioned Sleepy Hollow reclining chairs . . . sociable smoking lounges . . . roomy luggage compartments . . . individual lens lighting. Following names native to Illinois have been chosen for these cars: *Hubbard Trail; Horse-Shoe Trail; Egyptian Trail.*
- A hospitable lounge-grill car—*"Sparhawk Inn."* Circular counter facilitates fast and efficient service. Congenial lounge arrangement provides roomy passageway.
- Thermostatically controlled air conditioning throughout the entire train.

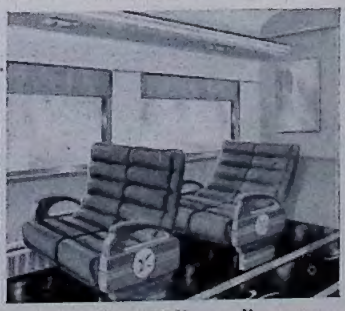
THE WHIPPOORWILL

Now in regular daily service between Chicago and Evansville, Ind.

Featuring:

- Spacious coaches with deep-cushioned Sleepy Hollow reclining chairs . . . sociable smoking lounges . . . roomy luggage compartments . . . individual lens lighting. In character with their unique beauty, these cars bear these distinctive names: *Vigo Trail; Vincennes Trail; Vanderburg Trail; Vermilion Trail;* and *Turkey Run.*
- Roomy diner, with diagonal seating—*"Shakamak Inn."*
- Luxurious observation parlor car—*"Chicagoland."*
- Thermostatically controlled air conditioning throughout the entire train.

"Sparhawk Inn" is the name of this unique, lounge-grill car. Passengers aboard the MEADOWLARK enjoy tempting "tidbits" prepared by an experienced chef.

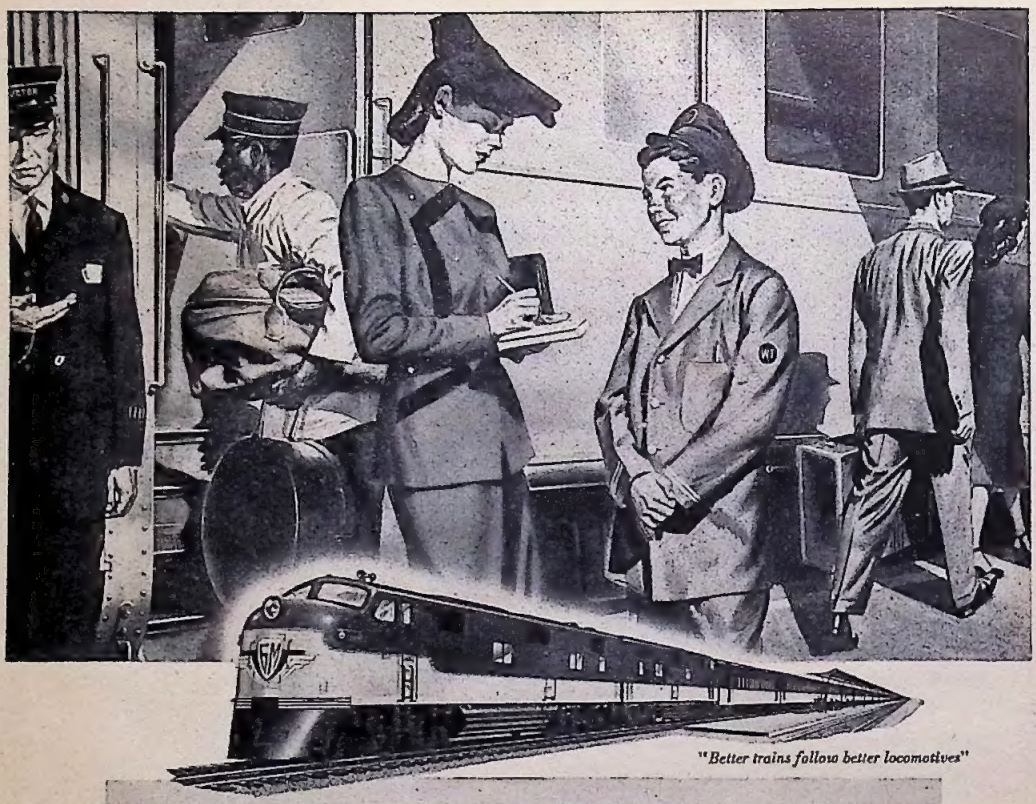


Famous Sleepy Hollow recliners are regular equipment on both new CHICAGO-liners . . . provide extra leg room . . . lounging freedom.

"Shakamak Inn" on the WHIPPOORWILL is America's most modern diner—featuring roomier, diagonal seating . . . the ultimate in railroad dining comfort.

CHICAGO & EASTERN ILLINOIS *railroad*

The Chicago Line



"Better trains follow better locomotives"

ARRIVED FRESH AS A DAISY=

YOU would think she had just stepped out of a magazine cover. She's so lovely, so fresh, so tidy. Yet this young lady has just completed a thousand-mile journey by rail.

That she made her trip behind a General Motors Diesel locomotive, in the elegance of a modern de luxe coach, explains her crisp, well-laundered look.

For these smooth-pulling locomotives, and the luxury-comforts of the modern coaches they originally inspired—contribute to make a long trip restful, unruffled and clean.

When GM Diesels ushered in the streamline era they lifted the entire level of virtually all travel. They added lure to joyous journeys over singing steel. To the haulage of modern freight loads they brought efficiencies which are truly revolutionary.

Outstanding as GM Diesels are today, they also set the pace for the new tomorrow. For they furnish the most essential and forward-moving element for the coming new day in railroading.

Their amazing operating and maintenance economies point the way to further modernization. And thus will benefit the entire nation, the public, investor and the railroads themselves.

GM
GENERAL MOTORS
DIESEL POWER

ELECTRO-MOTIVE DIVISION
GENERAL MOTORS
LA GRANGE, ILL.

Three Quarters of a CENTURY—*Young*

The Minneapolis & St. Louis Railway has just celebrated its 75th ANNIVERSARY

In September, 1871, the Minneapolis & St. Louis completed construction of its first line—28 miles in Minnesota, from Minneapolis to Merriam. It was years later that the M. & St. L. absorbed the Iowa Central, an even older railroad with a network of lines in Iowa, thus creating the present 1,400 mile system.

Old in years, with a history that spans Three Quarters of a Century of service to the Great Midwest, the M. & St. L. is Young in everything that makes for Transportation Progress.

Efficient modern equipment, that includes sixteen new Diesel locomotives and fleets of new freight cars, rolls on heavy-duty tracks, rebuilt with new rail, ties and ballast, to provide

Fast, Dependable Freight Service

For Minnesota, South Dakota, Iowa and Illinois, via the strategically located lines of the M. & St. L. and its time-saving

PEORIA GATEWAY

The Minneapolis & St. Louis *Railway*

TRAFFIC OFFICES IN 36 KEY CITIES

GENERAL OFFICES: NORTHWESTERN BANK BUILDING, MINNEAPOLIS 2, MINNESOTA

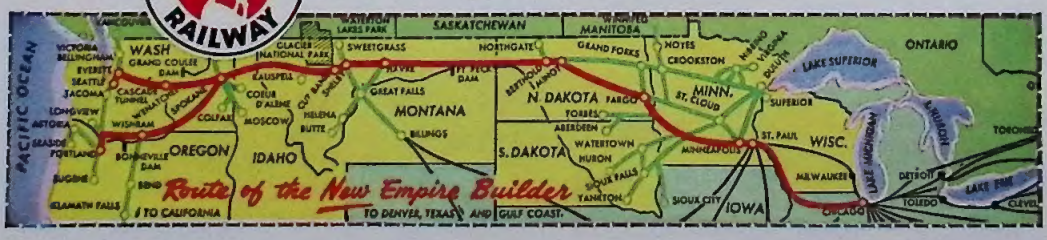
the *New* Empire Builder

custom-built for pleasant, faster travel

A new generation of a long-distinguished fleet of transcontinental trains—Great Northern's *New* Empire Builders. The *first* modern, sleeping car-coach trains built since the war, the New Empire Builders inaugurate the *first* streamliner service between Chicago and the Pacific Northwest on a daily 45-hour schedule. These sleek, colorful, diesel-drawn trains are custom-built for comfortable, refreshing travel. New style coaches . . . duplex roomettes . . . spacious bedrooms . . . cheerful lounges . . . gay coffee shops . . . and charming dining cars with Great Northern's famous food service. The *New* Empire Builders—modern trains designed for modern travelers.

New design duplex roomettes . . . ideal for the passenger who desires complete privacy and comfort.

New style Day-Nite coaches . . . more room for each passenger, more comfort and convenience.

GREAT NORTHERN RAILWAY

Serves the Best of the Great Northwest